Basin Report Objectives

This report is designed to provide a local perspective on the Statewide Water Supply Initiative 2010 (SWSI 2010) report. This basin report was prepared in consultation with the local Basin Roundtable established by House Bill 05-1177 and some sections of the report were directly produced by basin roundtable members. As such, the report not only summarizes basin-specific data from SWSI 2010, but also seeks to document progress, problems, and a path forward from the basin's perspective. The State of Colorado fully supports the basin roundtable process, yet the substantive conclusions of this report are those of the basin roundtable and are not necessarily endorsed by the State of Colorado.

This report is intended to provide reconnaissance-level data that employs consistency in data collection and forecast methodology across the state while maximizing available data. The methods utilized in this approach are for the purpose of general statewide and basinwide planning and are not intended to replace the efforts of local entities for project-specific purposes.

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Colorado Basin

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Acronyms

AF	acre-feet
AFY	acre-feet per year
BLM	Bureau of Land Management
BOR	U.S. Bureau of Reclamation
CBEF	Center for Business and Economic Forecasting
CDOW	Colorado Division of Wildlife
CDSS	Colorado Decision Support System
CRWAS	Colorado River Water Availability Study
CU	consumptive use
CU&L	Consumptive Uses and Losses
CWCB	Colorado Water Conservation Board
DMRP	Drought Mitigation and Response Plan
DNR	Department of Natural Resources
DSS	Decision Support System
EPA	U.S. Environmental Protection Agency
Fry-Ark	Fryingpan-Arkansas
GCILC	Ground County Irrigated Land Company
GCMs	General Circulation Models
GIS	geographic information system
gpcd	gallons per capita per day
HB	House Bill
HUC	Hydrologic Unit Code
IBCC	Interbasin Compact Committee
IPP	identified projects and processes
ISF	instream flows
IWR	Irrigation Water Requirement
M&I	municipal and industrial
MOU	Memorandum of Understanding
NCNA	Nonconsumptive Needs Assessment
NEPA	National Environmental Policy Act
NHD	National Hydrography Dataset
ORVs	outstandingly remarkable values
SB	Senate Bill
SDO	State Demographer's Office
SEO	State Engineer Office
SRGAP	Southwest Regional Gap Analysis Project
SSI	self-supplied industrial
SWSI	Statewide Water Supply Initiative
USFS	U.S. Forest Service
USGS	U.S. Geological Survey
WFET	Watershed Flow Evaluation Tool
WSL CU	Water Supply Limited Consumptive Use
WSRA	Water Supply Reserve Account

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Section 1
Introduction

1.1 Colorado Basin Roundtable

The Colorado Basin Roundtable represents the interests of the mainstem of the Colorado River System. The mainstem and its tributaries already support eight major transmountain diversions. Two of them are undergoing permitting that would result in additional diversions – and are likely to go through if two paradigm-shifting negotiations prove successful.

Meanwhile, the Statewide Water Supply Initiative (SWSI) indicates a looming gap in municipal and industrial (M&I) water supply for a growing population, chiefly on the Front Range, but also locally. As the Colorado River remains free of compact administration to satisfy flow requirements in other states, it continues to be a target for water development that would take water out of the basin.

With this reality in mind, the Colorado Basin Roundtable has spent significant time and money to learn about its own consumptive and nonconsumptive needs—to make sure that our economic potential, recreation economy, and environmental concerns are properly balanced in the statewide equation.

On the consumptive side, we commissioned a study on the potential demand from the energy industry and developed a placeholder requirement of approximately 120,000 acre-feet (AF) for a fully developed oil shale industry. This is now being used in model portfolios being developed by the Colorado Water Conservation Board (CWCB) for the Interbasin Compact Committee (IBCC) and the basin roundtables.

We also know from SWSI and other work by the CWCB that we have our own agricultural water supply and M&I gaps. The nonconsumptive study is attempting to identify stream stretches that are environmentally challenged while also evaluating desirable flows for recreational purposes. Recreation in the Colorado high country and downstream on the Colorado River is an important economic factor for the West Slope and the state.

The Interbasin Compact Committee Draft Report to the Governor dated December 2010 stated the obvious: The only way the state will solve its water supply gap without cannibalizing irrigated agriculture on both sides of the Continental Divide is through a four-pronged approach that includes achieving success in conservation and reuse, well-structured agricultural water transfers, identified projects and processes (IPPs) (projects on the drawing board), and new water development. The Colorado Basin Roundtable supports reuse and conservation first, retaining local control, including 1041 powers in an effort to reach consensus on acceptable projects and processes.

The Colorado Basin Roundtable developed a Vision Statement that advocates this tool box be fully rounded out and that every tool be pursued equally as vigorously, that a transmountain diversion is not the first—or only—thing to pop out of the box because in Colorado we possess the core competency to study, engineer, and build them. We don't have such a track record with statewide water conservation, although there are many individual successes, especially on the Front Range. Land use decisionmaking that could save water use is another tool that deserves more study and emphasis. If there is truly a dire water supply gap, then there is a dire need to look honestly at all options.

The planning currently underway looks at a 2050 horizon, when the State Demographer's Office (SDO) is predicting a statewide population of 10 million people. But life continues after 2050. The decisions we make based on 2050 will dictate what happens afterward. If the policies developed in the next 5 years (as per Governor Hickenlooper's request) result in an overemphasis on new water development in lieu of dealing adroitly and decisively with conservation, reuse, agricultural transfers, and land use, we are only putting off until 2050 what should be happening within our lifetimes. That is because the Colorado River system water development in play is clearly the last increment available prior to triggering compact administration.

On that subject, the Colorado Basin Roundtable is watching and waiting for the results of the Colorado Water Availability Study (CRWAS), and for that matter, the U.S. Bureau of Reclamation's (BOR's) Colorado Basin Study, the state's compact administration study, and the multi-party study of a West Slope Water Bank.

We hope they create an understanding of:

- The range of water left to develop,
- The variables that could be caused by climate change and long-term drought,
- What methods could be employed to forestall the day of compact administration, and
- What compact administration might look like.

We believe that if we can develop this body of knowledge, we can develop a better understanding of the risks associated with future water development.

Which brings up the subject of water development "futures" that have been undertaken by the IBCC. The focus to date has been on a mid-demand, mid-supply scenario of planning. We hope to see an examination of a low-supply, high-demand scenario to round out what is shaping up to be an honest intellectual examination of the state's challenges.

In the first paragraph, we cited two IPPs that are being permitted in the Colorado mainstem basin. They are Denver Water's Moffat Collection System Project that would increase that project's yield by 18,000 acre-feet per year (AFY), and the Windy Cap Firming Project, which would increase its yield by 30,000 AFY. Both Denver Water and Northern Water (through its Municipal Subdistrict) are negotiating with West Slope entities on how to make these projects win-win. Generally, if successful, while these projects would shave the peak of the hydrograph in average to wet years, they would also provide consumptive and environmental benefits to the West Slope. Nothing is final, but it is worth noting that there could be a new paradigm being developed that goes a long way toward balancing consumptive and nonconsumptive needs.

Later in this report, we will be citing Methods and Solutions to our own consumptive and nonconsumptive needs that could emerge from these negotiations.

We hope that if these projects can be negotiated and permitted under truly win-win conditions, it can take some of the pressure off the Front Range long enough for the state to learn more about water availability for future projects and the risks associated with developing it.

1.2 Overview of the Water for the 21st Century Act

In 2005, the Colorado General Assembly passed the Colorado Water for the 21st Century Act (House Bill [HB] 05-1177). This legislation set up a framework that provides a permanent forum for broad-based water discussions, and it created two new structures—1) the IBCC, a statewide committee that addresses issues between basins; and 2) the basin roundtables, which were established in each of the state's eight major river basins plus the Denver Metro area. The purpose of the basin roundtables is to facilitate discussions on water issues and encourage locally driven collaborative solutions. The broad-based, collaborative nature of this process is reflected in the basin roundtable membership.

To help the basin roundtables accomplish their major responsibility of developing basinwide needs assessments, they have relied on groundwork completed during the SWSI Phase 1 study. To further develop their needs assessments, support water activities in each of the basins, and implement identified water projects and methods, it was clear that the basin roundtables needed staff support as well as technical and financial assistance. Using resources provided through HB 06-1400, the CWCB provides staff support and technical assistance to the basin roundtables and the IBCC for the ongoing implementation of the Colorado Water for the 21st Century Act. The basin roundtables were also provided financial resources through Senate Bill (SB) 06-179, which established the Water Supply Reserve Account (WSRA). The WSRA appropriates money to the CWCB to help implement the consumptive and nonconsumptive water supply projects and methods identified by the basin roundtables. These bills and other relevant legislation are summarized below. The purpose of this report is to summarize the results of the Colorado Basin Roundtable's needs assessment that have been completed to date.

SB03-110 authorized SWSI 1, which implemented a collaborative approach to water resources issues by establishing SWSI roundtables. SWSI 1 focused on using a common technical basis for identifying and quantifying water needs and issues.

HB05-1177 or The Colorado Water for the 21st Century Act provides a permanent forum for broad-based water discussions. It creates two new structures: 1) the IBCC, and 2) the basin roundtables. There are nine basin roundtables based on Colorado's eight major river basins and the Denver Metro area.

SB06-179 created the WSRA. Throughout SWSI and Colorado Water for the 21st Century Act processes, there has been a clear recognition that financial assistance is needed to address the water challenges in our state. This legislation funds the WSRA, which directs the State Treasurer to annually transfer $10 million from the Operational Account of the Severance Tax Trust Fund to the WSRA. These monies are available to the basin roundtables to fund water activities.

HB06-1385 created the CWCB's Intrastate Water Management and Development Section, which implements SWSI, the WSRA, develops reconnaissance level water supply alternatives, and tracks and supports water supply projects and planning processes. This section is now called the Water Supply Planning Section.

HB06-1400 appropriated money to the CWCB to fund staffing of the Water for the 21st Century Act process and monies for a contractor to technical assistance the basin roundtables.

SB09-106 authorized the funding of the WSRA in perpetuity.

Basin roundtables are legislatively required to be made up of a diverse set of stakeholders, including representatives from counties, municipalities, water conservancy districts, the environmental and recreational communities, agriculture, and industry. The responsibilities of the basin roundtables can be grouped into three categories—procedural, substantive, and public involvement. Each basin roundtable adopted bylaws that include the basin roundtable's goals, objectives, and operating procedures. These bylaws reflect the specific needs of the basin roundtable and reflect the uniqueness of each basin. Each basin roundtable developed procedures and selected two members of the IBCC.

The most extensive substantive responsibility assigned to each basin roundtable is to develop a basinwide water needs assessment. This is performed in cooperation with local governments, area water providers, and other stakeholders. The Colorado Water for the 21st Century Act states "Using data from the Statewide Water Supply Initiative and other appropriate sources and in cooperation with the ongoing Statewide Water Supply Initiative, develop:"

- An assessment of consumptive water needs (municipal, industrial, and agricultural)
- An assessment of nonconsumptive water needs (environmental and recreational)
- An assessment of available water supplies (surface and groundwater) and an analysis of any unappropriated waters
- Proposed projects or methods to meet any identified water needs and achieve water supply sustainability over time

Equally important to selecting members of the IBCC and developing a basinwide water needs assessment, the basin roundtables serve as a forum for public involvement. The basin roundtable activities are required by law to be open, public meetings. The basin roundtable process creates an expanded foundation for public involvement.

This SWSI 2010 Report was largely based on basin roundtables' water needs assessments. This report is a summary of the Colorado Basin Roundtable's needs assessment results that were utilized in the SWSI 2010 Report and that were chosen by the basin roundtable to be included in this Colorado Basin Roundtable Needs Assessment Report.

1.3 Overview of the SWSI 2010 Report

The last decade brought many changes to the State of Colorado's water supply outlook. Despite the recent economic recession, the state has experienced significant population growth, and Colorado's population is expected to nearly double within the next 40 years. Colorado needs to provide an adequate water supply for its citizens and the environment, yet Colorado is transitioning from an era of undeveloped resources to an era of managing a more developed resource. Meeting the state's municipal, industrial, agricultural, environmental, and recreational water needs will involve implementing a mix of local water projects and processes, conservation, reuse, agricultural transfers, and the development of new water supplies, all of which should be pursued concurrently. Ultimately, the future of Colorado—both its vibrancy and its beauty—is dependent on how our water resources are sustained, used, and developed.

To help understand and address these trends, the CWCB undertook a number of important initiatives. The CWCB is statutorily charged to conserve, protect, manage, and develop Colorado's water resources for current and future generations. In advancing this mission, the CWCB helps ensure that water is utilized to meet the needs of Colorado's citizens while protecting the environment.

In the last few years, state leaders and resource management agencies have increasingly focused on helping ensure that Colorado has an adequate water supply for its citizens, agriculture, and the environment. In 2003, the Colorado General Assembly recognized the critical need to understand and better prepare for our long-term water needs and authorized the CWCB to implement the SWSI. SWSI 1, approved by the CWCB in 2004, was a comprehensive identification of Colorado's current and future water needs, and it examined a variety of approaches Colorado could take to meet those needs. SWSI 1 implemented a collaborative approach to water resource issues by establishing "basin roundtables"—diverse groups of individuals representing water interests who provide input on water issues.

This was followed by SWSI 2, which established four technical roundtables—Conservation, Alternative Agricultural Water Transfers, Environmental and Recreational Needs, and Addressing the Water Supply Gap. The overall goal of SWSI 2 was to develop a range of potential solutions that would help water providers, policymakers, and stakeholders gain a deeper understanding of the relative role that water efficiency, agricultural transfers, and new water development can play in meeting future needs and the trade-offs associated with these solutions.

In 2005, the legislature reaffirmed the need to prepare for a future in which water resources are increasingly limited by passing the Colorado Water for the 21st Century Act. This legislation institutionalized nine basin roundtables and created a voluntary, collaborative process to help the state address its water challenges. This process is based on the premise that Coloradoans can work together to address the water needs within the state.

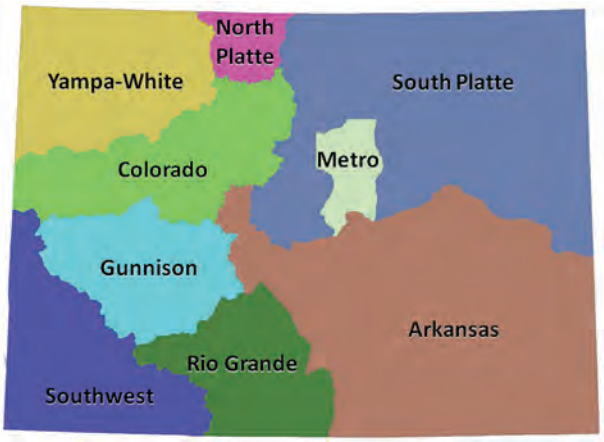

Figure 1-1 Colorado's nine basin roundtables provide a voluntary and collaborative process to help the state address its water challenges

Figure 1-1 illustrates the nine basin roundtables, which were organized to represent Colorado's eight major river basins and a separate basin roundtable for the Denver Metro area. The Yampa-White, Colorado, Gunnison, and Southwest Basin Roundtables are all based on tributaries to the Colorado River. The North Platte, Metro, and South Platte Basin Roundtables represent watersheds tributary to the Platte River. The Arkansas and Rio Grande Basin Roundtables are the headwaters of these river systems.

In addition to the nine basin roundtables, the Colorado Water for the 21st Century Act established the 27-member IBCC to facilitate conversations between basins and to address statewide issues. The IBCC established its charter in 2006, which was soon ratified by Colorado's General Assembly. The charter outlines the roles of the IBCC—to provide a "framework that creates incentives for successful deliberations, agreements, and their implementation." To help advance this role, the IBCC embarked on a visioning process, through which the IBCC, CWCB, and basin roundtables agreed to evaluate water demand and supply strategies that could help address Colorado's water supply future.

1.4 SWSI 2010 Report Recommendations

With the completion of the SWSI 2010, CWCB has updated its analysis of the state's water supply needs and recommends Colorado's water community enter an implementation phase to determine and pursue solutions to meeting the state's consumptive and nonconsumptive water supply needs. This will be accomplished through the following recommendations.

These recommendations do not necessarily represent a statewide consensus. The CWCB has deliberated on the information contained in SWSI 2010 and has put forth its view of how to move forward.

1. Actively encourage projects to address multiple purposes, including municipal, industrial, environmental, recreational, agricultural, risk management, and compact compliance needs.

2. Identify and utilize existing and new funding opportunities to assist in implementing projects and methods to meet Colorado's consumptive and nonconsumptive water supply needs.

3. Continue to lead the dialogue and foster cooperation among water interests in every basin and between basins for the purpose of implementing solutions to Colorado's water supply challenges.

4. Support water project proponents and opponents in resolving conflict and addressing concerns associated with implementing IPPs that will reduce the M&I water supply gap. Identify IPPs that could be implemented by 2020.

5. Support meeting Colorado's nonconsumptive water needs by working with Colorado's water stakeholders to help:

    - Promote recovery and sustainability of endangered, threatened, and imperiled species in a manner that allows the state to fully use its compact and decreed entitlements.
    - Protect or enhance environmental and recreational values that benefit local and statewide economies.
    - Encourage multi-purpose projects that benefit both water users and native species.
    - Pursue projects and other strategies, including CWCB's Instream Flow Program, that benefit consumptive water users, the riparian and aquatic environments, and stream recreation.
    - Recognize the importance of environmental and recreational benefits derived from agricultural water use, storage reservoirs, and other consumptive water uses and water management.

6. Help meet Colorado's agricultural water supply needs by incorporating agricultural water needs into the development of water supply portfolios and supporting the implementation of multi-purpose agricultural water supply projects.

7. In order to determine the appropriate combination of strategies (IPPs, conservation, reuse, agricultural transfers, and the development of new water supplies) and portfolios to meet the water supply needs, CWCB will identify what it considers is achievable for each portfolio element and how those portfolio elements could be implemented.

8. Evaluate multi-purpose projects or packages of projects to develop new water supplies for use on the West Slope and the Front Range.

9. Develop and support risk management strategies so that Colorado can fully use its compact and decree entitlements to best balance Colorado's diverse water needs.

10. Support, encourage, and incentivize water providers in planning for and implementing M&I active conservation best management practices and other demand management strategies.

11. Work with water providers to identify opportunities where additional water could be made available by increased regional cooperation, storage, exchanges, and other creative opportunities.

12. Continue the evaluation of Colorado's water supply availability in all basins to help provide water users with viable analysis tools.

13. Help safeguard Colorado's water supply during times of drought by incorporating drought mitigation and response in statewide and local water supply planning.

14. Support local water supply planning.

15. The CWCB, in consultation with other state agencies, shall develop and implement a plan to educate and promote stewardship of water resources that recognizes water's critical role in supporting the quality of life and economic prosperity of all Coloradoans.

16. Establish a 6-year planning cycle for assessing Colorado's long-term consumptive and nonconsumptive water needs and support the implementation of projects and methods to meet those needs.

1.5 Colorado Basin Roundtable Needs Assessment Report Overview

This report presents the information utilized in the SWSI 2010 Report and needs assessment information developed by the basin roundtable that is specific to the Colorado Basin. Following is a description of the contents of this Basin Needs Assessment Report:

- **Section 2** is a summary of the **Colorado Basin Nonconsumptive Needs Assessment** that have been completed to date. The roundtable has completed an extensive inventory of its environmental and recreational attributes and has summarized this information in focus area mapping.

- **Section 3** provides an overview of **Colorado Basin Nonconsumptive Projects and Methods** that have been gathered by the CWCB and a summary of this information as requested by the basin roundtable.

- **Section 4** summarizes the basin's M&I and agricultural water demands into a basinwide look at the **Colorado Basin's Consumptive Needs Assessment**. The consumptive demands utilize a planning horizon of 2050.

- In **Section 5**, projects and methods to meet consumptive needs are considered. As part of the summary, the **Projects and Methods to Meet Colorado Basin M&I Needs** are described at a regional level.

- The CWCB recently developed the draft CRWAS. In **Section 6, Water Availability** is considered statewide including a summary of the analyses considered in CRWAS as well as water availability information developed by the Basin Roundtables as part of their basinwide needs assessments and during SWSI 1.

- **Section 7** is a summary of the **Colorado Basin Roundtable's Strategies to Address Consumptive and Nonconsumptive Needs** as well as the basin roundtable's recommended next steps.

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Section 2
Colorado Basin Nonconsumptive Needs Assessment

2.1 Overview of Nonconsumptive Needs Assessments

As discussed in Section 1, the basin roundtables are required to complete Nonconsumptive Needs Assessments (NCNAs). This effort has included an extensive inventory, analysis, and synthesized mapping effort that built upon the Statewide Water Supply Initiative (SWSI) 2 environmental and recreational attribute mapping as a common technical platform for the basin roundtables. **Figure 2-1** shows the process that was utilized by the Colorado Water Conservation Board (CWCB) and basin roundtables in completing their NCNAs. The basin roundtables have utilized environmental and recreational mapping to identify where the nonconsumptive focus areas are in their basins. The basin roundtables' nonconsumptive focus areas and further study efforts are intended to facilitate the identification of projects and methods to address environmental and recreational water needs. The Colorado Basin nonconsumptive identified projects and methods are summarized in Section 3 of this report.

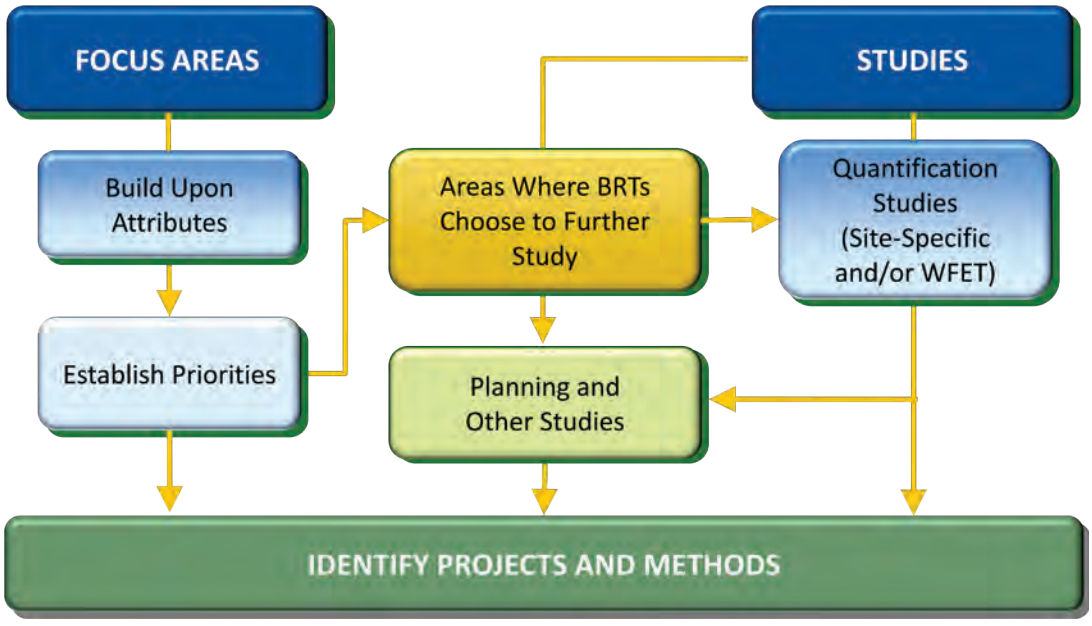

Figure 2-1 Nonconsumptive Needs Assessment Methodology

The focus area maps developed by each basin roundtable are based on a common set of environmental and recreational attributes and represent where Colorado's important water-based environmental and recreational attributes are located. The maps are reflective of stakeholder input for the focus areas and also reflect stream reaches and subwatersheds with higher concentrations of environmental and recreational qualities. These maps were generated to provide information to the basin roundtables on important environmental and recreational areas in their basins but were not intended to dictate future actions. It should be noted, and as will be shown in this section, that this effort has not identified all streams as important. The NCNAs are not intended to create a water right for the environment and will not diminish, impair, or cause injury to existing absolute or conditional water rights. The CWCB and basin roundtable developed the environmental and recreational focus area mapping for the following purposes:

- The maps are intended to serve as a useful guide for water supply planning so that future conflicts over environmental and recreational needs can be avoided.
- The maps can assist in identifying environmental and recreational water needs status, such as where needs are being met, where additional future study may need to take place, or where implementation projects in the basin are needed.
- The maps can help basins plan for the water needs of species of special concern so that they do not become federally-listed as endangered or threatened in the future.
- The maps can provide opportunity for collaborative efforts for future multi-objective projects.

2.2 Focus Area Mapping Methodology

Underlying the work done by the basin roundtables is a common technical platform, which builds off SWSI 2, as described above. This common technical platform approach recognizes the need for each basin roundtable to utilize the technical work in the most effective manner for the stakeholders and concerns within the basin. For example, some basins that were focused on wetlands or bird habitat issues used a watershed approach, while others focused on instream habitat.

Overall, the basin roundtables used three methods to identify their focus areas as shown in **Figure 2-2**. After the basin roundtables gathered additional data layers beyond existing SWSI 2 geographic information system (GIS) data layers, they each developed a summary map that highlighted environmental and recreational focus areas for their basin. The Colorado Basin Roundtable used Method 3, which reviewed all available data layers for their basin, and based on stakeholder knowledge and outreach, selected stream reaches that represented the majority of environmental and recreational activity in their basins.

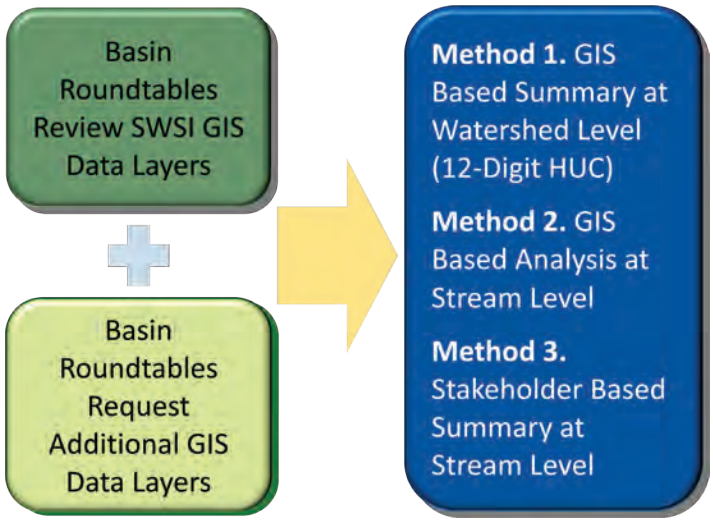

Figure 2-2 Basin Roundtable Focus Area Mapping Methodology

GIS software was used to organize the data layers for environmental and recreational attributes associated with nonconsumptive water needs for each basin. The term "data layer" refers to geographic data that represents a specific type of feature or attribute (e.g., wetlands or species habitat) and can also be referred to as a shapefile. Multiple data layers, organized collectively, are referred to as a dataset. The environmental and recreational data layers for each basin were selected using the SWSI 2 GIS data layers as a starting point. The basin roundtables reviewed the available data layers compiled during SWSI 2 and then suggested and contributed additional data layers as deemed appropriate for each basin. The SWSI 2010 Report's Appendix C contains the *Nonconsumptive Needs Assessment Focus Mapping Final Report* that provides the detailed methodology utilized by each basin roundtable in developing their focus area map .

2.2.1 SWSI 2 GIS Data Layers

The Environmental and Recreational Technical Roundtable that was formed under SWSI 2 developed a list of select environmental and recreational GIS data layers that could potentially be used by decisionmakers to determine areas of focus for environmental and recreational water needs. The complete list of SWSI 2 GIS data layers is shown in **Table 2-1**.

Table 2-1 SWSI 2 Environmental and Recreational Data Layers

Arkansas Darter	Gold Medal Trout Streams
Audubon Important Bird Areas	Greenback Cutthroat Trout
Bluehead Sucker	Greenback Cutthroat Trout
Bonytail Chub	Humpback Chub
Boreal Toad Critical Habitat	Rafting and Kayak Reaches
Colorado Department of Public Health and Environment Water Quality Control Division 303(D) Listed Segments	Rare Riparian Wetland Vascular Plants
Colorado Pikeminnow	Razorback Sucker
Colorado River Cutthroat Trout	Recreational In-Channel Diversions
CWCB Instream Flow Rights	Rio Grande Cutthroat Trout
CWCB Natural Lake Levels	Rio Grande Sucker
CWCB Water Rights Where Water Availability had a Role in Appropriation	Roundtail Chub
Flannelmouth Sucker	Significant Riparian/Wetland Communities
Gold Medal Trout Lakes	

In addition to the SWSI 2 environmental and recreational GIS data layers, the basin roundtables requested the attainment and development of other important environmental and recreational GIS data layers. Some of the additional GIS data were received directly from state and federal agencies, nongovernmental organizations and municipalities, or downloaded from their official websites. Other additional GIS data were digitized from available information, lists, or maps provided by basin roundtables, specialists (biologists, recreation guides), and other stakeholders. **Table 2-2** contains a list of additional environmental and recreational data layers that were collected statewide based on the basin roundtables input.

Table 2-2 Additional Statewide Environmental and Recreational Data Layers Based on Basin Roundtable Input

Additional Fishing	National Wetlands Inventory
Additional Greenback Cutthroat Trout Waters	Northern Leopard Frog Locations
Additional Paddling/Rafting/Kayaking/Flatwater Boating	Northern Redbelly Dace
Additional Rio Grande Sucker and Chub Streams	Osprey Nestsites and Foraging Areas
Bald Eagle Winter Concentration	Piping Plover
Bald Eagle Active Nestsites	Plains Minnow
Bald Eagle Summer Forage	Plains Orangethroat Darter
Bald Eagle Winter Forage	Preble's Meadow Jumping Mouse
Brassy Minnow	River Otter Confirmed Sightings
Colorado Birding Trails	River Otter Overall Range
Colorado Outstanding Waters	Rocky Mountain Biological Laboratory (scientific and educational reaches)
Common Garter Snake	Sandhill Crane Staging Areas
Common Shiner	Southwestern Willow Flycatcher
Ducks Unlimited Project Areas	Stonecat
Educational Segments	Waterfowl Hunting Areas
Eligible/Suitable Wild and Scenic	Wild and Scenic Study Rivers
Grand Mesa, Uncompahgre, and Gunnison Wilderness Waters/Areas	Wildlife Viewing
High Recreation Areas	Yellow Mud Turtle
Least Tern	

2.2.2 GIS Analysis of Data Layers

The Colorado Basin Roundtable examined their collected environmental and recreational data layers and utilized a stakeholder process to establish what the environmental and recreational focus areas should be for their respective basins. The basin roundtables summarized their environmental and recreational attributes on a map and created a table summarizing why the segment was included as a focus area and important attributes for each segment. This information has been summarized at the National Hydrography Dataset stream reach level. Detailed information about this approach is summarized in Appendix C of the SWSI 2010 Report.

2.3 Nonconsumptive Focus Area Mapping Results

Using the methodologies and techniques outlined above, the Colorado Basin developed a unique map showing focus areas with nonconsumptive environmental and recreational water needs. The basin map was created as a Geospatial PDF file, or GeoPDF, to allow the user the ability to "click" areas of the map and view characteristics of that portion of the map such as what attribute subcategories are present for a given Hydrologic Unit Code or stream segment. In addition, the presence of specific attributes (e.g., Iowa darter, trout, kayaking, etc.) is also summarized as well as information designated by the basin roundtable through creation of tables associated with their map. **Figure 2-3** can be used as a GeoPDF in the electronic version of this report. To utilize the maps interactively, select the tools dropdown list, then select the analysis tools arrow and then click on the "object data tool." Using this tool, triple click a reach for additional information that will appear on the left side. Figure 2-3 shows the Colorado Basin Roundtable's focus area map. The map was developed primarily using site-specific knowledge of the waterbodies, and a detailed table with more than 65 segments was developed to be used in conjunction with the map. The map shows the identified segments highlighted in red with the corresponding table segment identification number for reference. The map was developed as a GeoPDF, which allows the viewer to select any identified segment (in red) and see their corresponding segment attributes.

2.4 Summary of Colorado Basin Watershed Flow Evaluation Tool Results

The Colorado Basin Roundtable expressed interest in quantifying the flows needed to sustain their nonconsumptive attributes. Several long-standing methods exist for quantifying water needs for recreation and the environment; these methods are: 1) designed for assessing individual river segments, 2) primarily oriented toward fish (i.e., they did not address other ecosystem needs such as maintaining riparian areas), and 3) expensive to implement (currently $50,000-$75,000 for results applicable to tens of kilometers), making it cost-prohibitive to apply them across all streams and rivers in a watershed. To fill the need for a broadly applicable assessment of flow related to nonconsumptive attributes, the Colorado Basin Roundtable has used CWCB's Water Supply Reserve Account Grant Funds to complete the Watershed Flow Evaluation Tool[1] (WFET) study. This study provides a regional framework for understanding ecological risk for environmental attributes related to flow and establishes a baseline for recreational flow needs in the Colorado River Basin. A regional approach was of interest to the Colorado Basin Roundtable because of the time and expense of conducting site-specific quantification studies throughout the basin. Site-specific quantification is based on data from short stream segments (hundreds of feet) and can be extrapolated only to relatively short segments (at most tens of miles) that the sample reach represents. The Colorado River Basin has an area of approximately 9,800 square miles and contains about 4,800 miles of named streams. This study will be completed during 2011 and summary information on results to date are provided below. The results of the study will further assist the roundtable in refining the projects and methods to meet nonconsumptive needs in the basin (see Section 3).

The WFET provides a framework for examining the risk[2] of ecological change[3] related to stream flow alteration, at a watershed or regional level. The WFET, as applied in this investigation, is used to assess the risk that stream-based ecological resources may have changed as a result of human uses and the diversion of water. The WFET can help identify watershed areas where the historical alteration of stream flow is most likely to have modified ecological resources from conditions that may have historically existed prior to the time that water was first diverted for irrigation, domestic use, and other purposes. The WFET can also be used to examine ecological responses to future streamflow scenarios resulting from new water development projects, a compact call, or climate change.

Flow is considered a "master variable" that is of central importance in maintaining river health[4]. At the same time, natural influences on ecological resources may include the physical, chemical, geological, and biological properties of the watershed, local climatic conditions, and other related factors. Anthropogenic activities such as fisheries management, land use practices, physical disturbance, stream channelization, and nonpoint source runoff may also influence ecological resources. The variables that influence ecological

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[1] Development of the Watershed Flow Evaluation Tool generally followed the framework presented by Poff NL, Richter BD, Arthington AH, Bunn SE, Naiman RJ, Kendy E, Acreman M, Apse C, Bledsoe BP, Freeman MC, Henriksen J, Jacobson RB, Kennen JG, Merritt DM, O'Keeffe JH, Olden JD, Rogers K, Tharme RE, Warner A. 2010. The ecological limits of hydrologic alteration : a new framework for developing regional environmental flow standards. *Freshwater Biology* **55**: 147-170.

[2] "Risk" is used to capture several different meanings. Under current conditions, risk is perhaps best thought about as a probability of a given outcome, or the vulnerability of a non-consumptive attribute to changes in flow management. For analysis of future scenarios, risk speaks to the chances that vulnerability will be increased. Risk also incorporates that knowledge that streamflow is not the only factor determining ecological outcomes.

[3] Changes to recreational flows are also of concern to Colorado Basin Roundtable members, and recreational flows are also being assessed during WFET development and application. However, some fundamental differences exist between how recreational flows and environmental flows are evaluated, including the assumptions underlying the evaluations and the implications of the evaluations. Only environmental aspects are considered in this document.

[4] Poff, N. L., J. D. Allan, M. B. Bain, J. R. Karr, K. L. Prestegaard, B. D. Richter, R. E. Sparks and J. C. Stromberg. 1997. The natural flow regime. BioScience 47:769-784.

resources may be directly or indirectly related to stream flow, or may be unrelated to stream flow. The WFET evaluates the relationship between stream flow and ecology, but does not explicitly consider the other variables, conditions, and interactions not related to stream flow, which can influence the sensitivity of an ecological resource to change.

For many tens of locations throughout a watershed where natural and managed flows have been modeled, the WFET identifies the relative probability that the state of an ecological resource may have changed due to long-term changes in flow, i.e., the WFET evaluates the risk of a change in the river ecosystem resulting from changes in flow. Because of the complex nature of river ecosystems, if the WFET analysis identifies that an ecological resource may be at risk of change as a result of hydrologic alteration, it does not necessarily indicate that an actual change in the ecological resource has occurred, or that any such ecological change that has occurred is specifically attributable to flow alteration.

- Using flow metrics to assess the viability of an ecological community necessitates certain assumptions, and the validity of these assumptions can affect the reliability of the results of the WFET. Some of these assumptions are: flow regime is one of the primary determinants of the structure and function of aquatic and riparian ecosystems. This assumption is well-supported by copious peer-reviewed literature spanning well over two decades.

- Modeled streamflows, for both undepleted (a.k.a., "natural" or "undeveloped") as well as existing (a.k.a. "altered," "managed," or "developed") conditions, are accurate. StateMod was used in the WFET because it is the best hydrologic model available that extends over the entire basin area. Accuracy is expected to be high in some locations and lower in others. Where accuracy is low, additional site-specific measurements of hydrologic conditions may be warranted.

- The 31-year study period for which stream flow estimates have been developed is representative of the long-term climatic conditions to which the ecological resources in the study area are adapted. Several researchers have investigated this assumption[5], and they have concluded that a 31-year period of record is sufficient to characterize climatic conditions as well as the year-to-year variability inherent in streamflows. While the ecological attributes that WFET chose to model are important in their own right, there is an assumption that these attributes are also indicators of potential changes in diverse ecological systems, e.g., that cottonwoods also represent other riparian species and that trout also represent other fish.

- Flow-ecology relationships accurately represent the response of the ecological attributes to a change in flow conditions. The flow-ecology relationships are based on current best available science.

Based on the key assumptions outlined above, and upon findings of the WFET pilot studies and comparison with limited site-specific information, the primary capabilities and limitations of the WFET are summarized below.

[5] For example: Kennard MJ, Pusey BJ, Olden JD, MacKay SJ, Stein JL, Marsh N. 2010. Classification of natural flow regimes in Australia to support environmental flow management. *Freshwater Biology* 55:171-193. DOI: 10.1111/j.1365-2427.2009.02307.x.

Capabilities

- The WFET can provide a regional assessment of the risk of ecological change from stream flow alteration, identifying locations with minimal to high risk of change based on flow conditions for specific stream attributes without detailed site-specific information.
- The WFET can identify important seasonal stream flow conditions that may be associated with a risk of ecological change.
- The WFET can be used to target areas that may need further site-specific studies.
- The WFET can be used to identify areas with environmentally healthy flow conditions where non-flow restoration efforts are especially warranted if there are ecological impairments at that location.
- The WFET can help facilitate discussions on a watershed level regarding social preferences and priorities relating to natural resource management and nonconsumptive needs.
- The WFET can be used to assess the vulnerability to ecological change from large-scale water-management scenarios, including major new water development projects, the effects of a Colorado River compact call, benefits or risks associated with a water bank, or future hydrology under climate change scenarios.
- The WFET can be used to identify watersheds with concentrations of "low risk" streams. In these areas, there may be, for example, increased chances of long-term maintenance of environmental goals, because larger connected stream networks are more resilient disturbance.
- The WFET may have utility to convey summary status of a watershed (e.g., a Water District), or to quantify needs over geographic areas larger than individual stream segments. Because the need to quantify nonconsumptive water needs, basin roundtable members and the technical team are exploring ways the WFET can be credibly used to meet this objective.
- The WFET may be used by water providers in the initial planning stages of project development to help determine which project or operation alternative is likely to have the fewest red flags associated with it and/or which may help the environment.
- Although the WFET does not assess or identify any conflicts between recreational and ecological needs, it can potentially be used to explore ways that management scenarios can be crafted to support both recreational and environmental needs.

Limitations

- Because the WFET does not require site-specific ecological data to identify the potential risk of ecological change, it should not serve as the basis for reach specific flow prescriptions in administrative or judicial processes, absent site-specific data.
- The WFET has been developed to identify the risk of ecological change due to flow alteration, but is insufficient to quantify nonconsumptive water needs on a site-specific basis. Also, the WFET is only one tool in the toolkit for assessing environmental condition as it relates to flow management.
- The WFET will not provide results as detailed or as accurate as a site-specific analysis.
- The WFET does not identify areas where ecological change may be associated with factors other than stream flow, and the WFET does not explicitly evaluate or consider these additional factors that

influence ecological and recreational resources, although some of these factors are implicitly considering in the flow-ecology relationships.

- The WFET does not speak to the value of a given change in a resource. For example, it does not address whether or not a change in cottonwood establishment is desirable or not. Rather, the WFET indicates the risk of a change.

- Due to the complexity of determinant factors and ecological response, the WFET does not predict the structure and function of an ecological community under past or future conditions.

WFET flow-ecology risk mapping was developed for the following attributes:

- Trout
- Warm Water Fish
- Riparian Vegetation

Summary maps (Figures 2-4 through 2-7) were used to assess the flow-ecology risk for all attributes—trout, warm water fish, and riparian—at each node StateMod location. Attributes are represented by a different symbol and color across all maps. The summary maps also outline water quality concerns brought up during Phase I NCNA mapping efforts. These concerns are located in call-out boxes for each applicable water district.

Figure 2-4 shows the high flow-ecology risk locations, including nodes with high/very high trout, high warm water fish, and very high riparian flow-ecology risk. The attribute with largest amount of high risk flow-ecology relationship nodes is riparian recruitment (unconfined geomorphic settings) followed by trout. **Figure 2-5** is a summary of moderate trout and warm water fish flow-ecology risk and high riparian flow-ecology risk. The attribute with the most nodes with moderate flow-ecology risk is riparian abundance (unconfined geomorphic settings). Trout, riparian recruitment (unconfined geomorphic settings), and riparian in confined settings have nearly the same number of moderate flow-ecology risk nodes. A summary of minimal risk locations is shown in **Figure 2-6** and includes minimal trout and warm water fish flow-ecology risk and moderate riparian flow-ecology risk. Trout and riparian abundance (unconfined geomorphic settings) have the majority of minimal flow-ecology risk nodes. Finally, **Figure 2-7** is a summary of low flow-ecology risk locations for trout, warm water fish and riparian vegetation attributes. The majority of low-flow ecology risk nodes are trout and warm water fish.

51-Upper Colorado/Fraser Rivers
* Sedimentation (Colorado River-3 Lakes Area [6], Windy Gap Reservoir [8], Williams Fork to Blue River [10], Fraser River-portions of Fraser & tribs affected by Moffat and Meadow Creek diversions [15], Williams Fork River- Upstream of Williams fork Dam [17])
* NPS-Urban (Williams Fork River-Upstream from Williams Fork Dam [17])
* Algae/Aquatic Weeds (Colorado River-3 Lakes Area [6])
* Temperature Issues (Colorado River-Williams Fork to Blue River [10], Fraser River-St. Louis Creek to Colorado River [16])

36-Blue River Basin
* Sedimentation (Snake River-Upstream from Dillon Reservoir [2])
* NPS-Mining (Snake River-Upstream from Dillon Reservoir [2])

37-Eagle River Basin
* 303 (d) Sediment (Black Gore/ Gore Creek-Vail Pass [25])
* 303 (d) Metals (Willow Creek, Turkey Creek, Cross Creek, Eagle River to Gore Creek Confluence-Red Cliff [28])
* 303 (d) Zinc (Eagle River-Eagle Mine to Minturn [19])
* Sedimentation (Eagle River-Eagle Mine to Minturn [18], South Fork Eagle River-Camp Hale [21], Willow Creek, Turkey Creek, Cross Creek, Eagle River to Gore Creek Confluence-Red Cliff) [28]
* NPS-Agriculture (Alkali Creek-Near Wolcott [32]), NPS-Mining (Black Gore/ Gore Creek-Vail Pass [25], Eagle Creek-Eagle Mine to Minturn [19], Willow Creek, Turkey Creek, Cross Creek, Eagle River to Gore Creek Confluence-Red Cliff [28])
* NPS-Stormwater Runoff (Black Gore/ Gore Creek-Vail Pass [25], Willow Creek, Turkey Creek, Cross Creek, Eagle River to Gore Creek Confluence-Red Cliff [28])

38-Roaring Fork River Basin
* NPS-Stormwater Runoff (Crystal River-From Thompson Creek to Roaring Fork Confl [52], Roaring Fork-Between Aspen and Carbondale [40], and Lower Roaring Fork-Below Carbondale [41])
* Effluent Discharges (Roaring Fork-Between Aspen and Carbondale [40])
* Salinity Issues (Cattle Creek-Below Mountain Meadow Ditch [53B], Lower Roaring Fork-Below Carbondale [41])
* Sedimentation (Brush Creek [47])

72-Lower Colorado River
* Sedimentation (Colorado River-Rifle, Silt, & New Castle [61], Rifle to Grand Junction [62])
* Chemical Pollution (Colorado River-Rifle, Silt & New Castle [61])
* Salinity Issues (Lower Colorado River-From Silt to Grand Junction, Grand Valley [14])

Legend

- Trout Flow-Ecology Significant/High Risk
- Warm Water Fish Flow-Ecology High Risk

Cottonwood in Confined Settings
- Confined Flow-Ecology Very High Risk

Cottonwood in Unconfined Settings
- Abundance Flow-Ecology Very High Risk
- Recruitment Flow-Ecology Very High Risk
- Study Stream
- Stream and River
- Lake and Reservoir
- Highway
- Road
- City and Town
- County Boundary
- Colorado Basin Water District

N W E S

0 3 6 12 18 Miles

Figure 2-4
Colorado Basin Watershed Flow Evaluation Tool

Summary of High Flow-Ecology Risk Locations for Riparian, Trout, and Warm Water Fish

CDM

Document: \\Dengisvr1\cdmgis\SWS\INONCONSUMPTIVE\COLORADO_WFETM\MXD

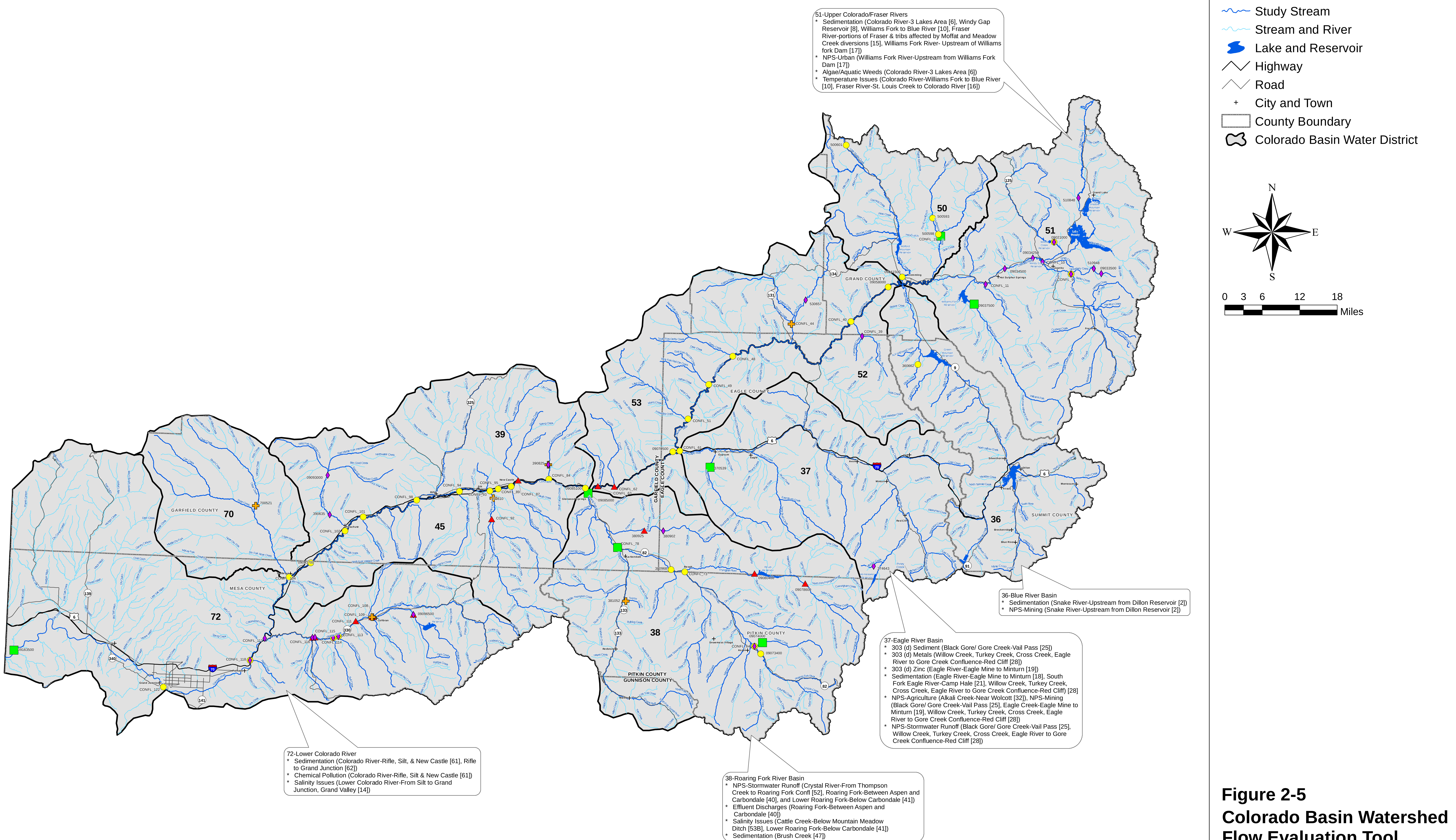


Figure 2-5
Colorado Basin Watershed Flow Evaluation Tool

Summary of Moderate Flow-Ecology Risk Locations for Riparian, Trout, and Warm Water Fish

CDM

Document: \\Dengissvr1\cdmgis\SWSI\NONCONSUMPTIVE\COLORADO_WFET.MXD

51-Upper Colorado/Fraser Rivers
* Sedimentation (Colorado River-3 Lakes Area [6], Windy Gap Reservoir [8], Williams Fork to Blue River [10], Fraser River-portions of Fraser & tribs affected by Moffat and Meadow Creek diversions [15], Williams Fork River- Upstream of Williams fork Dam [17])
* NPS-Urban (Williams Fork River-Upstream from Williams Fork Dam [17])
* Algae/Aquatic Weeds (Colorado River-3 Lakes Area [6])
* Temperature Issues (Colorado River-Williams Fork to Blue River [10], Fraser River-St. Louis Creek to Colorado River [16])

36-Blue River Basin
* Sedimentation (Snake River-Upstream from Dillon Reservoir [2])
* NPS-Mining (Snake River-Upstream from Dillon Reservoir [2])

37-Eagle River Basin
* 303 (d) Sediment (Black Gore/ Gore Creek-Vail Pass [25])
* 303 (d) Metals (Willow Creek, Turkey Creek, Cross Creek, Eagle River to Gore Creek Confluence-Red Cliff [28])
* 303 (d) Zinc (Eagle River-Eagle Mine to Minturn [19])
* Sedimentation (Eagle River-Eagle Mine to Minturn [18], South Fork Eagle River-Camp Hale [21], Willow Creek, Turkey Creek, Cross Creek, Eagle River to Gore Creek Confluence-Red Cliff) [28]
* NPS-Agriculture (Alkali Creek-Near Wolcott [32]), NPS-Mining (Black Gore/ Gore Creek-Vail Pass [25], Eagle Creek-Eagle Mine to Minturn [19], Willow Creek, Turkey Creek, Cross Creek, Eagle River to Gore Creek Confluence-Red Cliff [28])
* NPS-Stormwater Runoff (Black Gore/ Gore Creek-Vail Pass [25], Willow Creek, Turkey Creek, Cross Creek, Eagle River to Gore Creek Confluence-Red Cliff [28])

38-Roaring Fork River Basin
* NPS-Stormwater Runoff (Crystal River-From Thompson Creek to Roaring Fork Confl [52], Roaring Fork-Between Aspen and Carbondale [40], and Lower Roaring Fork-Below Carbondale [41])
* Effluent Discharges (Roaring Fork-Between Aspen and Carbondale [40])
* Salinity Issues (Cattle Creek-Below Mountain Meadow Ditch [53B], Lower Roaring Fork-Below Carbondale [41])
* Sedimentation (Brush Creek [47])

72-Lower Colorado River
* Sedimentation (Colorado River-Rifle, Silt, & New Castle [61], Rifle to Grand Junction [62])
* Chemical Pollution (Colorado River-Rifle, Silt & New Castle [61])
* Salinity Issues (Lower Colorado River-From Silt to Grand Junction, Grand Valley [14])

Legend

- Trout Flow-Ecology Minimal Risk
- Warm Water Fish Flow-Ecology Minimal Risk

Cottonwood in Confined Settings
- Confined Flow-Ecology Moderate Risk

Cottonwood in Unconfined Settings
- Abundance Flow-Ecology Moderate Risk
- Recruitment Flow-Ecology Moderate Risk
- Study Stream
- Stream and River
- Lake and Reservoir
- Highway
- Road
- City and Town
- County Boundary
- Colorado Basin Water District

N W E S

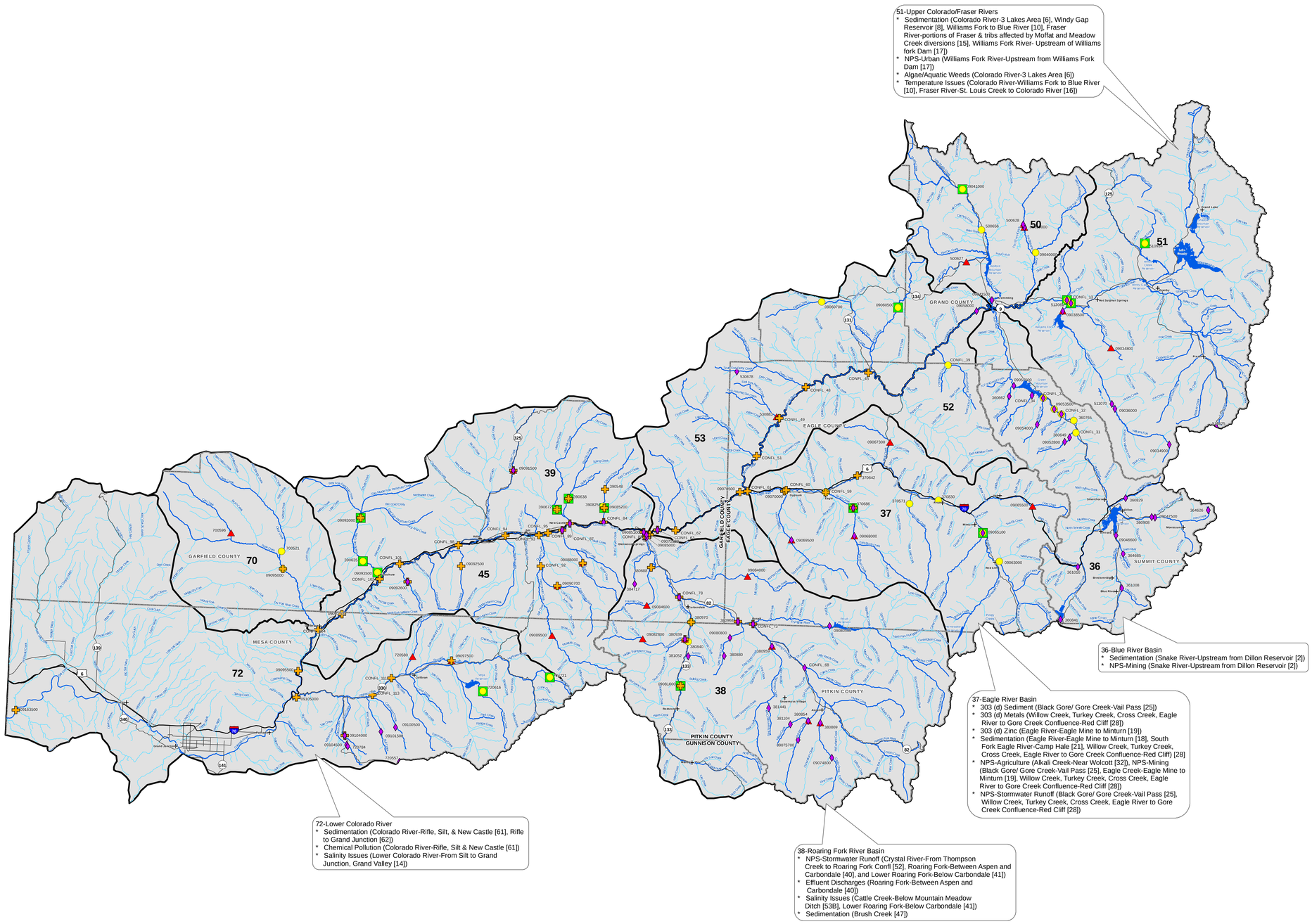
0 3 6 12 18 Miles

Figure 2-6
Colorado Basin Watershed Flow Evaluation Tool

Summary of Minimal Flow-Ecology Risk Locations for Riparian, Trout, and Warm Water Fish

CDM

Document: \\Dengisvr1\cdmgis\SWSI\NONCONSUMPTIVE\COLORADO_WFET\MXD



Legend

- Trout Flow-Ecology Low Risk
- Warm Water Fish Flow-Ecology Low Risk

Cottonwood in Confined Settings

- Confined Flow-Ecology Low Risk

Cottonwood in Unconfined Settings

- Abundance Flow-Ecology Low Risk
- Recruitment Flow-Ecology Low Risk
- Study Stream
- Stream and River
- Lake and Reservoir
- Highway
- Road
- City and Town
- County Boundary
- Colorado Basin Water District

N W E S

0 3 6 12 18 Miles

Figure 2-7
Colorado Basin Watershed Flow Evaluation Tool

Summary of Low Flow-Ecology Risk Locations for Riparian, Trout, and Warm Water Fish

CDM

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Section 3
Colorado Basin Nonconsumptive Projects and Methods

3.1 Nonconsumptive Projects and Methods Overview

Section 2 of this report summarizes the nonconsumptive needs in the Colorado Basin. As discussed in Section 1, the Water for the 21st Century Act requires the basin roundtables to identify projects and methods to meet their consumptive and nonconsumptive needs. For consumptive projects and methods, the Colorado Water Conservation Board (CWCB) worked with water providers and the basin roundtables to update the Statewide Water Supply Initiative (SWSI) 1 identified projects and processes (IPPs) from a planning horizon of 2030 to 2050. This effort is summarized in Section 5 of this report. For nonconsumptive needs, the CWCB has conducted an analogous outreach effort with the environmental and recreational community and the basin roundtables to identify nonconsumptive projects and methods similar to the municipal and industrial (M&I) consumptive IPPs. CWCB digitized the project information into geographical information system (GIS) and compared this information with the nonconsumptive focus areas summarized in Section 2. With this information, CWCB was able to preliminarily identify nonconsumptive focus areas with and without projects and methods. It is important to note that if a focus area does not have an associated project and method it does not mean that the area needs protective projects and methods. It is also important to note that CWCB did not judge the sufficiency of the projects and methods in each reach; rather, as with the M&I IPPs, CWCB did not judge the merits of the nonconsumptive projects and methods being pursued by local organizations. This information gathered was intended to assist the basin roundtables in addressing the following questions:

1. Are there existing protections/efforts for environmental and recreational focus areas?
2. Are there areas without protections that need further study?
3. What strategies are needed to support nonconsumptive priority areas?
4. Are there areas where new flow or water level quantification is appropriate?
5. Are there areas where a project, whether structural (e.g., river restoration) or nonstructural, can be identified and implemented?
6. Are there areas where no action is needed at this time?

Section 3.2 describes the methodology used to gather nonconsumptive projects and methods across the state. Section 3.3 summarizes the methodology used to analyze the project and method information.

3.2 Nonconsumptive Projects and Methods Methodology

In January 2010, CWCB developed a survey to collect information on where there are existing or planned nonconsumptive projects, methods, and studies. Studies were included since they may recommend or inform the implementation of projects or methods that will provide protection or enhancement of environmental and recreational attributes. This survey was distributed through CWCB's basin roundtable and e-mail database. On February 10, 2010, CWCB conducted a workshop in Silverthorne, Colorado to discuss the Phase II efforts and to collect information on nonconsumptive projects, methods, and studies from the workshop attendees. At the workshop, information on 116 stream segments and 209 projects, methods, or studies was provided to CWCB. In addition, CWCB also gathered information on individuals and organizations to follow up with the data collection effort. Since the February 2010 meeting, an additional 57 meetings have occurred to gather data on additional projects, methods, and studies. **Table 3-1** below summarizes the number of individuals or organizations contacted since the February 2010 meeting; the number of follow-up meetings held; and the number of projects, methods, and studies identified to date for each basin. Table 3-1 details the number of projects, methods, and studies that are in the focus areas and the number of projects outside of the focus areas. In total, 648 projects were identified from the outreach effort. Examples of the types of projects collected during this outreach effort include:

- Habitat restoration projects such as bank stabilization projects or instream habitat restoration such as pool and riffle development. Another example of habitat restoration area projects that focus on the maintaining connectivity for fish passage such as fish ladders.
- Flow protection projects such as voluntary flow agreements, instream flow (ISF) donations, or voluntary re-operation of reservoirs for releases for environmental or recreational needs.

Table 3-1 Summary of Meetings to Collect Nonconsumptive Project and Methods Information

Basin Roundtable	No. of Individuals or Organizations Contacted	No. of Meetings	No. Projects and Methods in Focus Areas	No. Projects and Methods Outside Focus Areas	Total No. Projects and Methods
Arkansas	7	5	40	0	40
Colorado	**21**	**12**	**168**	**35**	**203**
Gunnison	9	4	44	15	59
Metro	See South Platte	See South Platte	See South Platte	See South Platte	See South Platte
North Platte	1	1	41	7	48
Rio Grande	10	5	59	0	59
South Platte	17	14	54	53	107
Southwest	17	12	84	10	94
Yampa-White	9	4	22	16	38
TOTAL	91	57	512	136	648

In addition, there is a great deal of information gathered from divisions within the Colorado Department of Natural Resources (DNR) that have been integrated into the projects and methods database. For instance, **Table 3-2** summarizes CWCB's ISFs for each basin roundtable. Decreed ISFs have been confirmed by the water court. Pending ISFs have been approved by the CWCB Board and are going through the water court process. Recommended ISFs include those areas submitted to CWCB as a recommendation, but not yet approved by the CWCB Board at this time.

Table 3-2 Summary of CWCB Instream Flows and Natural Lake Levels

Basin Roundtable	Natural Lakes	ISF Decreed	Pending ISF	Recommended ISF
Arkansas	86	171	11	8
Colorado	**150**	**404**	**12**	**6**
Gunnison	82	259	15	2
Metro	0	24	0	0
North Platte	31	45	1	3
Rio Grande	49	141	0	0
South Platte	31	208	2	2
Southwest	50	151	4	6
Yampa-White	150	175	7	5
TOTAL	**494**	**1,578**	**52**	**32**

The CWCB's Watershed Protection and Flood Mitigation section oversees the agency's watershed restoration efforts. In addition, many of the Water Supply Reserve Account (WSRA) grants fully or partially address nonconsumptive needs. **Table 3-3** shows the funding programs implemented by CWCB and project type associated with each program. The table shows the status of the projects; pending in this case means that either the contract has not yet been signed, but has CWCB approval, or that applicants have applied, but are not yet approved by the CWCB.

Table 3-3 Summary of CWCB's Watershed Restoration and Nonconsumptive WSRA Projects

Funding Source	Type	Complete	On-going	Pending	Total
Colorado Healthy Rivers Fund	Report	19	9	3	31
Colorado Healthy Rivers Fund	Restoration Project	15	7	6	28
Colorado Watershed Restoration Program	Report	1	3	0	4
Colorado Watershed Restoration Program	Restoration Project	2	9	1	12
Fish and Wildlife Resources Fund	Restoration Project	2	2	0	4
Multi-Objective Watershed Protection Plan	Report	5	0	1	6
Multi-Objective Watershed Protection Plan	Restoration Project	6	0	4	10
WSRA Nonconsumptive Related Grants	Report	8	15	3	26
WSRA Nonconsumptive Related Grants	Restoration Project	13	12	4	29
TOTAL		**71**	**57**	**22**	**150**
Total Restoration Projects	**Restoration Project**	**38**	**30**	**15**	**83**
Total Reports	**Report**	**33**	**27**	**7**	**67**
TOTAL CWCB Dollars Spent/Encumbered		$14,499,625			
TOTAL Estimated Match Dollars		$34,323,697			
TOTAL Approximate Expenditures		**$ 48,823,322**			

In addition to CWCB's efforts, the Colorado Division of Wildlife (CDOW) is mandated by statute to manage the state's fishery and wildlife resources for the benefit of the citizens and visitors to the State of Colorado. The CDOW Aquatic Section takes the lead for fishery management for the agency, and to this end has mapped every waterbody, stream, or river segment in Colorado and associated a water management classification relating back to fishery objectives for that waterbody. The CDOW has participated in the basin roundtable processes throughout in order to provide data and information on basin fisheries, indicate fishery management priorities, and also to communicate where the most significant threats are currently located. CDOW recognizes that human uses of water will often conflict directly or indirectly with the ability to manage fisheries to meet these objectives. CDOW anticipates that as water resources are more intensively managed in the future, that pre-emptive coordination between water developers and conservation interests can minimize and in some cases improve their ability to meet fishery objectives in Colorado.

As has been recognized elsewhere in this document and others, the fisheries in Colorado are nationally renowned; as such, the economy of many headwater communities, especially in the Colorado River Basin, are substantially dependent on the health and viability of the aquatic community. Lower in the basin, the Colorado River also has a significant reach of 'Critical Habitat' listed under the Endangered Species Act to support endangered populations of Colorado pikeminnow and razorback sucker inhabiting these reaches (Rifle to the state line). Managing recreational, listed, and nonlisted conservation species (e.g.,. Colorado River cutthroat trout, roundtail chub) are the primary goals for the Aquatic Section staff, and include a substantial commitment to raising fish in hatcheries for recreational and conservation purposes. Included below is a bulleted list of tasks that fishery managers and staff routinely undertake to manage fisheries:

- Monitoring of fisheries for population estimates, measures of 'quality' (e.g., Gold Medal Waters), and species composition.
- Growth and stocking of recreational and conservation cold- and warm-water species.
- Aquatic nuisance species monitoring and control (e.g., quagga and zebra mussels; virile crayfish; nonnative predatory fish).
- Fishery regulatory review and implementation (i.e., establishment of and updates to fishery bag and possession limits).
- Participation in Federal Endangered Fish Recovery Programs.
- Serving as the CWCB's 'biological consultants' for instream flow appropriations.
- Aquatic pathogen and water quality contamination research, response, and spill investigation.
- Work with local communities and stakeholder groups to implement local projects, such as removing migration barriers (or in the case of native cutthroat trout, installing migration barriers to stratify native and nonnative populations of trout) or stream habitat improvement projects.
- Formal regulatory processes governed by state or federal statute (county 1041 consultation, National Environmental Policy Act, U.S. Army Corps of Engineers Section 404 permitting).
- Participation as official liaisons to the basin roundtable processes.

The CDOW is aware of the inherent conflict between additional development of water resources and its mandate to manage fishery resources for the people of Colorado and its visitors. However, there are also many examples of a beneficial synergy between fishery management objectives and water development, such as below certain dams where enhanced tailwater fisheries develop with augmented summer and fall streamflows; the benefits of certain agricultural practices that divert a relatively small portion of the high volume flows that return slowly through fields and alluvial aquifers to supplement streamflow later in the year; or flow management agreements with water providers that meet multiple objectives. As noted, CDOW is continually engaged in projects and processes that are intended to meet nonconsumptive environmental needs; specifically, the management of fisheries statewide. Itemizing only specific projects CDOW is working on at the time of this publication may create a misunderstanding about the direct role CDOW continually plays preserving and protecting nonconsumptive environmental attributes. CDOW Colorado River Basin priorities include:

Moffat and Windy Gap Firming Projects – CDOW has been engaged in an extensive public process during the latter part of 2010 and into 2011 to develop a state position on mitigation for Denver Water's Moffat firming project and Northern Water Conservancy District's Windy Gap Firming Project. Though not required by statute to do so, CDOW engaged the public and the applicants in a preliminary process to develop mitigation recommendations for these significant projects. Collectively, they have the potential to directly impact aquatic resources in the Colorado River Basin above the confluence of the Blue River west of Kremmling, and indirectly throughout the entire basin due to the additional 100 percent consumptive depletions to the river. These discussions have also led to the drafting of an enhancement plan based on adaptive water management and subsequent monitoring and research ('Learning by Doing') that should help address lingering effects from earlier transmountain diversions in the Upper Basin. In addition, the CDOW has been cognizant of the Cooperative Agreement between Denver Water and over 30 West Slope communities surrounding water development and future needs on both sides of the Continental Divide. It is anticipated that integrating mitigation requirements and the enhancement plan with a comprehensive understanding of the needs of the communities in the Colorado Basin will result in improvements of impaired stream reaches and preservation of intact aquatic functions. It is also anticipated that CDOW will play a pivotal role acquiring the data and directing additional research needs to most efficiently utilize the 'Learning by Doing' approach.

Upper Colorado River Endangered Fish Recovery Program Overview

In 1988, the Upper Colorado River Endangered Fish Recovery Program was established to help bring four species of endangered fish back from the brink of extinction: the humpback chub, bonytail, Colorado pikeminnow, and razorback sucker.

The Recovery Program is a unique partnership of local, state, and federal agencies, water and power interests, and environmental groups. This major undertaking involves restoring and managing stream flows and habitat, boosting wild populations with hatchery-raised endangered fish, and reducing negative interactions with certain nonnative fish species. The goal of recovery is to achieve natural, self-sustaining populations of the endangered fish so they no longer require protection under the federal Endangered Species Act. (http://www.coloradoriverrecovery.org/general-information/about.html)

Shoshone Operations Understanding – The senior power call for water in Glenwood Canyon is a vital component to preserving year-long flows throughout the Upper Basin. The Shoshone facility has been recognized not only for its value producing sustainable energy, but also for the nonconsumptive values it preserves. CDOW has met with operators of Shoshone to discuss issues related to routine maintenance and plant shutdown, and the subsequent impacts that can occur if the river is rapidly dewatered or if accumulated sediments in the stilling pool are released at inappropriate times relative to spawning trout. A section within the Cooperative Agreement also addresses the preservation of the Shoshone call, which CDOW strongly supports.

Colorado River Cutthroat Trout – Many tributaries of the Colorado River from the headwaters to as far west as the Roan Plateau and Grand Mesa have native populations of cutthroat trout. In nearly every case, the CDOW is actively pursuing preservation and in many cases, expansion and protection of these rare fish (state-listed Species of Concern). These activities include working with: 1) federal land managers to protect riparian processes; 2) industry and private entities to prevent dewatering, sedimentation, and water quality degradation; and 3) conservation groups and other fishery managers to prevent hybridization with nonnative fish and to expand populations to increase genetic resiliency.

Native Warm Water Species Conservation – The roundtail chub, flannelmouth sucker, and bluehead sucker are not listed under the Endangered Species Act, but these fish are the topic of a six-state conservation agreement (Utah, Wyoming, New Mexico, Arizona, Nevada, and Colorado) also signed by several federal agencies (U.S. Bureau of Reclamation, U.S. Forest Service [USFS], and the Bureau of Land Management [BLM]). The '3 Species Conservation Agreement' articulates the need to develop specific regional strategies to protect and preserve these species against the combined threats of nonnative

competition and predation, hydrologic alteration, and habitat fragmentation. CDOW is actively engaged in drafting of a three-species conservation strategy for Colorado, monitoring for population status and trends, and conducting research on inter-species effects and critical life-stage requirements.

Colorado River Cooperative Agreement Overview

In April 2011, details about the proposed Colorado River Cooperative Agreement were announced. The Colorado River Cooperative Agreement is the product of 5 years of mediated negotiations. The agreement involves 34 parties. Specific environmental and recreational provisions in the proposed agreement include:

- Denver Water will comply with the mitigation plan approved by the U.S. Army Corps of Engineers as part of the Moffat Project permitting process. The Grand County commitments are in addition to the mitigation plan and are intended to improve current stream conditions in Grand County.
- Denver Water will pay $11 million for projects such as nutrient loading, aquatic habitat, the Berthoud Pass sedimentation pond, Windy Gap pumping costs for environmental purposes, and Learning by Doing. Learning by Doing referenced above will include Denver Water managing flows it does not capture for diversion for environmental purposes as determined by the Learning by Doing group.
- Denver Water will make available 1,000 acre-feet of water each year from its Fraser River Collection System for environmental purposes in Grand County, at times and locations requested by Grand County. This water otherwise would have been diverted to the East Slope. This water will be matched with an additional 1,000 acre-feet from Williams Fork Reservoir under specified conditions that also will be released at the request of Grand County.
- Denver Water will limit its existing right to reduce bypass flows to times when it has banned residential lawn watering and to manage spills from its Fraser River Collection System to provide environmental benefits.
- Denver Water will not oppose Colorado Water Conservation Board instream flow filings on the Colorado River below the Blue River and will not oppose a Recreation In-Channel Diversion water right filing on the Colorado River below Gore Canyon.
- Denver Water will place $1 million into a fund to protect Wild & Scenic outstanding resource values.

Finally, CWCB included the Southwest Regional Gap Analysis Project (SRGAP), coordinated by U.S. Geological Survey (USGS) into the projects and methods database. The SRGAP created detailed, seamless GIS data layers of land cover, all native terrestrial vertebrate species, land stewardship, and management status values. The management status values quantify the relationship between land management and biodiversity throughout the State of Colorado. Four management status values are as described below:

- Status 4 lands are where there are no known public or private institutional mandates or legally recognized easements or deed restrictions held by the managing entity to prevent conversion of natural habitat types to anthropogenic habitat types. The area generally allows conversion to unnatural land cover throughout.
- Status 3 lands comprise areas having permanent protection from conversion of natural land cover for the majority of the area, but subject to extractive uses of either a broad, low-intensity type (e.g., logging) or localized intense type (e.g., mining). It also confers protection to federally-listed endangered and threatened species throughout the area.
- Status 2 lands are areas having permanent protection from conversion of natural land cover and a mandated management plan in operation to maintain a primarily natural state, but which may receive uses or management practices that degrade the quality of existing natural communities, including suppression of natural disturbance.
- Status 1 lands include areas having permanent protection from conversion of natural land cover and a mandated management plan in operation to maintain a natural state within which disturbance

events (of natural type, frequency, intensity, and legacy) are allowed to proceed without interference or are mimicked through management.

For this effort, CWCB include areas with a status between 1 and 2.5 as a project and method in the nonconsumptive projects database.

3.3 Nonconsumptive Projects and Methods GIS Mapping and Analysis Methodology and Results

The project and method information collected by CWCB, as described in Section 3.2, was spatially digitized in GIS. Each project was digitized separately using an existing stream database called National Hydrography Dataset (NHD) 12-digit segments. The average length of a NHD segment is 1.5 miles. Depending on the length of the project, multiple NHD segments could represent one project. Also, depending on the project location, multiple projects could exist on the same NHD segment. A unique Project Identification and Segment Identification were given to all surveyed and interviewed projects within the Nonconsumptive Needs Assessment database. In addition, the WSRA grant project locations were digitized in a similar fashion. The CWCB ISFs and natural lake levels, CWCB restoration projects, and the USGS SRGAP information had previously been summarized using GIS; therefore, this data did not have to be digitized. The USGS SRGAP information was analyzed further to calculate a weighted management status value for each NHD segment. This value was calculated in GIS for each NHD 12-digit Hydrologic Unit Code (HUC) by a weighted average of each land management status within the HUC.

Following are the assumptions used in digitizing the nonconsumptive projects and methods:

- No NHD segment was edited (i.e., if the project was smaller than an NHD segment, the whole NHD segment was used to represent the project location).
- Projects were digitized based on hand-drawn locations and/or brief descriptions. This information is still under review by the basin roundtables.

Following are the types of information included in the GIS geodatabase for each project:

- Project or Method Name
- Project or Method Type (i.e., study, flow protection, or restoration project)
- Project or Method Location
- Comments

Colorado River Cooperative Agreement Shoshone Provisions

Following are the Shoshone call provisions that were proposed in the agreement that will provide environmental and recreational benefit:

- The parties will implement a "Shoshone Outage Protocol" during an outage of the Shoshone Power Plant to mitigate the potential adverse effects of the absence of the Shoshone Call. Denver Water, the Middle Park District, and the River District agree to operate their water collection and storage systems as if the senior Shoshone Power Plant right were in priority during specified times when the plant is not operational. The parties will cooperate to achieve permanent management of the flows of the Colorado River based on historical conditions and will work with the Bureau of Reclamation to achieve operation of Green Mountain Reservoir based on the Outage Protocol.
- Denver Water will agree to cooperate in an investigation and potential acquisition of the Shoshone Power Plant by West Slope parties.
- The parties agree to not oppose the existing 2007 call relaxation agreement between Denver Water and Xcel Energy and to support renewal of the agreement. If the relaxation is made permanent, Denver Water will make 500 acre-feet of its increased yield resulting from the relaxation available as a permanent source of blending water for the Water Infrastructure Supply Efficiency project. Recipients of the blending water would pay a system development charge into a special fund to be used for permanent preservation of the Shoshone Call flows. The time of the call relaxation can be extended in defined drought conditions.

- Project or Method Status (i.e., ongoing, planned, or completed)
- Project or Method Identification Number
- Project or Method Contact Name
- Project or Method Contact Identification Number

Figure 3-1 at the end of this section is a summary of the projects and methods developed to date by CWCB and represents the spatial information for all nonconsumptive projects and methods that are planned, ongoing, or completed in the Colorado Basin. This map contains all nonconsumptive projects and methods including—1) CWCB interviews and workshops, 2) CWCB watershed restoration projects, 3) WSRA grants, 4) ISFs, 5) USGS SRGAP information, and 6) CDOW projects. This map includes projects and methods inside the designated focus areas to spatially display the full extent of any project collected by CWCB. This information is also summarized in **Table 3-4** at the end of this section. This table summarizes the project name, location, type, and status. In addition, it summarizes the attributes located within the project boundary and also summarizes information about the type of protections the project provides as defined below.

In addition to identifying the spatial extent and status of the identified projects and methods, CWCB also examined what type of protection the project or method may provide to a given environmental or recreational attribute. CWCB has classified the projects as having direct or indirect protections based on a given environmental or recreational attribute. The definitions used for direct and indirect protections are as follows:

- **Direct Protection** – Projects and methods with components designed intentionally to improve a specific attribute. For example, ISFs have direct protection of fish attributes. Additionally, restoration of a stream channel would also provide direct protections for aquatic species.
- **Indirect Protection** – Projects and methods with components that were not designed to directly improve the specific attribute but may still provide protection. For example, flow protection for a fish species may also indirectly protect riparian vegetation that is located in the area of the flow protection. Another example includes protective land stewardship or a wetland or bank stabilization effort that could indirectly protect aquatic species.

Endangered Fish Water Offers other Benefits to the River

Four warm water fish species that inhabit the lower reaches of the Colorado River watershed in western Colorado have been listed as endangered under the federal Endangered Species Act.

East Slope and West Slope water providers in the Upper Colorado Basin have committed to permanently supply 10,825 acre-feet of water per year (10825 water) to assist with the recovery of the endangered fish. This water is supplied to the "15-Mile Reach" of the Colorado River near Grand Junction during the late summer months. During this time of year the stream flow of the Colorado River within the 15-Mile Reach is substantially impacted by upstream water diversions, and the supplemental 10825 water is beneficial to the endangered fish recovery program.

The commitment to provide 10825 water is divided equally between East Slope and West Slope water providers, with each responsible to supply 5,412.5 acre-feet per year on a permanent basis. Currently, the 10825 water is provided on a temporary and interim basis by Denver Water (from Williams Fork Reservoir) and by the Colorado River Water Conservation District (from Wolford Mountain Reservoir).

The water providers are working to provide permanent sources of water and an environmental analysis is focusing on the East Slope share coming from Granby Reservoir and the West Slope share from Ruedi Reservoir.

The Granby alternative offers potential greater benefits than just for the endangered fish. Because Granby is high in the system, released water will help with environmental flows in the upper Colorado River while it travels toward Grand Junction. This is especially important for the river segments between the Granby Dam and the confluence with Williams Fork Reservoir, both in Grand County.

The Roaring Fork Watershed Plan

The Roaring Fork Watershed Plan has been in the works since 2005 and is now in final draft form. It was preceded by the "State of the Watershed Report," which documented the status of the valleys' water resources in the areas of groundwater, instream and riparian habitat, regional water management, water quantity, and water quality. The findings of that report were the basis of the recommendations of the plan, which were developed in the course of several public meetings held over the course of 2009-2010. The plan includes 200 recommended actions that are organized according to the same categories as the State of the Watershed Report. That plan has been presented to most of the local government jurisdictions and to other local water managers and has been met with general approval and support.

The plan may have an impact of water demand and supply in the valley as it is implemented over time. Implementation of the various recommendations will be in the hands of a number of agencies and governments and recommendations will be carried out as resources, priorities, and partnerships emerge. Some of the recommendations may have an immediate impact on water supplies. For instance, one of the high-priority actions is to develop and implement a watershed-wide conservation program that aimed at supplementing local stream flow levels in critical reaches. Other recommendations may have longer-term impacts, such as the recommendation to create a stronger voice for the valley in regional water planning efforts such as the Interbasin Compact Committee process. In any case, the existence of the plan has raised the consciousness of many valley residents regarding water issues that will improve local understanding and participation in the long run. The plan may also act as a template for other watersheds around the state to take a stronger hand in determining the future of local water resources.

The projects and methods identified through interviews were individually evaluated and compared to the environmental and recreational attributes gathered by the basin roundtables during their focus area mapping effort. This information is included in Table 3-4 at the end of this section. CWCB examined the various attributes summarized by the roundtables in their focus area mapping efforts (Section 2) and indentified if these areas have projects and methods that provide direct or indirect protections. The interviewed projects and methods, instream flows, and stewardship information were assigned direct or indirect protections based on roundtable attributes. In the Colorado Basin, the basin roundtable identified 2,200 miles of water bodies as focus areas. For these focus areas, 72 percent have an associated project or method. **Table 3-5** summarizes the project and method protections identified for the Colorado Basin. In the attribute column of Table 3-5, the environmental and recreational attributes collected by the basin roundtable are summarized. The recreation attribute category includes attributes from whitewater and flatwater boating. Important Riparian and Wetland Areas category includes significant riparian areas and rare plant communities. Federally listed fish species include Bonytail Chub, Colorado Pikeminnow, Humpback Chub, and Razorback Sucker. Warmwater state endangered, threatened, and species of special concern include Bluehead Sucker, Flannelmouth Sucker, and Roundtail Chub. The remaining attributes are specific species and were not categorized.

Table 3-5 Summary of Protections for the Colorado Basin Environmental and Recreational Attributes

Attribute Category	Percent of Attribute Length with Direct Protections	Percent of Attribute Length with Indirect Protections	Percent of Attribute Length with Direct and Indirect Protections	Total Percent of Attribute Length with Protections
Colorado River Cutthroat Trout	37%	16%	19%	72%
Federally Listed Fish Species	75%	0%	24%	99%
Fishing	84%	0%	2%	86%
Important Riparian Habitat	0%	66%	0%	66%
Recreation	0%	0%	0%	0%
Warmwater State Endangered, Threatened and Species of Special Concern	48%	5%	9%	62%

Upper Colorado River Wild and Scenic Plan

Water interests along the upper Colorado River, including transmountain diverters, have put forward an Upper Colorado River Wild and Scenic Stakeholder Group Management Plan to protect the river's "outstandingly remarkable values" (ORVs) that were identified in the BLM and USFS Eligibility Reports for Segments 4 through 7 of the Upper Colorado River.

The plan is being proposed to the BLM and the USFS as an alternative way to protect ORVs while allowing a flexibility for water resource management. The Stakeholder Group's intention for this collaborative plan is to balance permanent protection of the ORVs, certainty for the stakeholders, water project yield, and flexibility for water users. A significant benefit of the plan is that through the cooperative and voluntary efforts of interested water users, local governments, and other entities, the ORVs can be protected (and perhaps enhanced) in ways that coordinate with federal agency management.

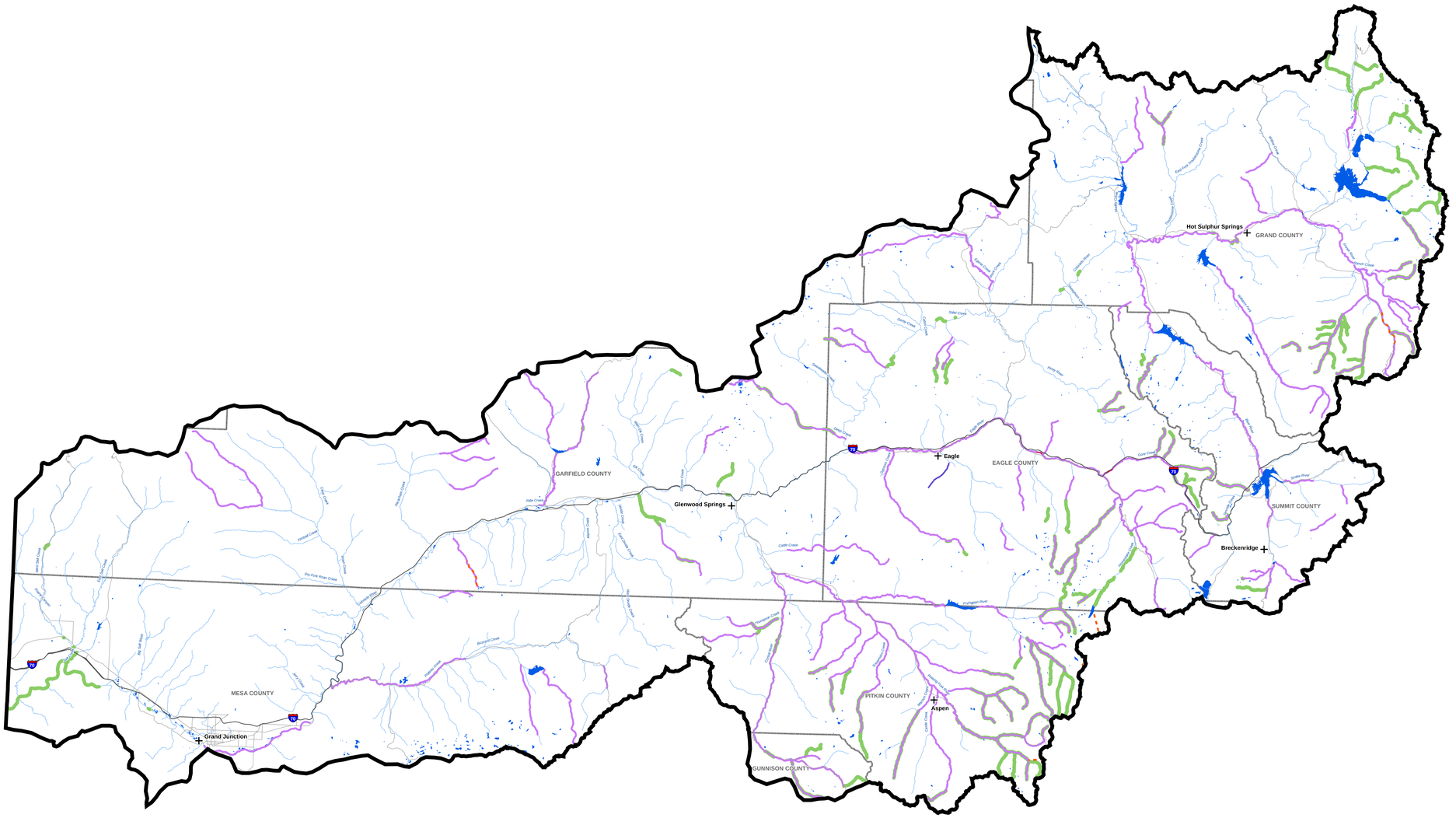
The plan will use identified Long-Term Protection Measures and voluntary Cooperative Measures of the Stakeholder Group to protect the ORVs. Examples of the protective measures include the appropriation of a CWCB ISF water right, delivery of water to senior water demands downstream of Segments 4 through 7, and water deliveries to the 15-Mile Reach in the Grand Valley pursuant to the Upper Colorado River Endangered Fish Recovery Program.

The plan aims to protect all ORVs while focusing on recreational fishing (in Segments 4 through 6) and recreational float boating (in Segments 4 through 7). The plan uses two distinct tools – "ORV Indicators" (characterizing the range and quality of the ORVs), which will be used to gage whether the ORVs are being protected; and "Resource Guides" (reflecting ranges for factors such as flow, temperature, and water quality) that will be used as a source of information among others to inform Stakeholder Group discussions under the plan.

Resource Guides are not intended to be used as a test for plan success nor for use by permitting agencies or entities as the criterion for evaluating a project's effects on the ORVs. However, nothing in the plan shall preclude or limit the use of any data regardless of whether such data has been used in the negotiation of the Resource Guides. The Resource Guides will not create binding requirements that water providers satisfy specific flow levels. The plan's implementation procedures will provide a feedback loop to periodically confirm that the plan contains mechanisms to address concerns related to impairment of or a significant risk of impairment to the ORVs.

The effective date of the plan will commence upon issuance of records of decision by BLM and the USFS approving the Plan without material change as the Wild and Scenic Rivers management alternative for Segments 4 through 7 of the Upper Colorado River.

Proponents of new projects that seek federal authorization, funding, or assistance could choose to participate in the plan. In such event, a new project proponent would inform the Stakeholders Group of the proposed project in a timely manner to facilitate consideration and comment on the project, formally endorse the plan and commit to participate in the Cooperative Measures procedures and funding provisions of the plan, and demonstrate to the appropriate permitting/authorizing agency(ies) that project operations will not unreasonably diminish the ORVs or that operations will be subject to mitigation to avoid unreasonably diminishing the ORVs. The Stakeholders Group intends that permitting or authorizing agency(ies) will conduct their own independent assessment of a project's impacts to the ORVs, if any. membership as a stakeholder is not intended to serve as project mitigation nor as a means to demonstrate that a project does not unreasonably diminish the ORVs (except as may be agreed between the project proponent and the Stakeholder Group).

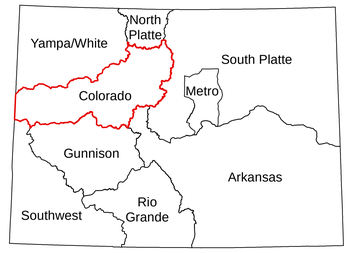


Legend

- River and Stream
- Lake and Reservoir
- City and Town
- Road
- County Boundary
- Basin

Projects

- CDOW
- CWCB
- ISF
- Stewardship
- WSRA



Colorado Basins

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Miles

Figure 3-1
Colorado Basin
Nonconsumptive Needs Assessment
Focus Areas with
Projects and Methods

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Table 3-4 Colorado Basin Nonconsumptive Identified Projects and Processes Summary

Project Name	Project Location	Project Type	Project Status	Basin Roundtable Attributes Identified	Project Protections	Reach ID
Roaring Fork River	5-85CW639	Appropriated	Completed	Aquatic_Ec, Bluehead Sucker, CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Rec_Boatin, recreational in-channel diversion structures, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	40, 41
Blue River	5-86CW217	Appropriated	Completed	Aquatic_Ec, Bluehead Sucker, CWCB instream flow water rights, Rafting/kayaking/flatwater reaches, Riparian/Wetlands, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Blue River	5-86CW204	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, Flannelmouth Sucker, Rafting/kayaking/flatwater reaches, Riparian/Wetlands, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Officers Gulch	5-85CW642	Appropriated	Completed	Aquatic_Ec, Boreal Toad, Colorado River Cutthroat Trout , CWCB instream flow water rights, CWCB natural lake level water rights, Riparian/Wetlands	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Crystal Creek	5-85CW643	Appropriated	Completed	Aquatic_Ec, Boreal Toad, Colorado River Cutthroat Trout , CWCB instream flow water rights, CWCB natural lake level water rights, Riparian/Wetlands, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Spruce Creek	5-85CW645	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Roaring Fork River	5-85CW646	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, Rec_Boatin, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	40
Meadow Creek	5-85CW647	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Plateau Creek	5-85CW652	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, Rafting/kayaking/flatwater reaches, RipWet_Eco	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	60

Table 3-4 Colorado Basin Nonconsumptive Identified Projects and Processes Summary (continued)

Project Name	Project Location	Project Type	Project Status	Basin Roundtable Attributes Identified	Project Protections	Reach ID
Kinney Creek	5-86CW207	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Snake River	5-86CW210	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	2
Blue River	5-86CW211	Appropriated	Completed	Aquatic_Ec, Boreal Toad, CWCB instream flow water rights, CWCB natural lake level water rights, Flannelmouth Sucker, Rafting/kayaking/flatwater reaches, Riparian/Wetlands, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Gore Creek	5-86CW216	Enlarged	Completed	Aquatic_Ec, CWCB instream flow water rights, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Rec_Boatin, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	26
Northwater Creek	5-85CW635	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	59
Meadow Creek	5-86CW218	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Gore Creek	5-86CW221	Enlarged	Completed	Aquatic_Ec, CWCB instream flow water rights, CWCB natural lake level water rights, Rec_Boatin, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	26
Gore Creek	5-86CW222	Enlarged	Completed	Aquatic_Ec, Boreal Toad, CWCB instream flow water rights, CWCB natural lake level water rights, Rafting/kayaking/flatwater reaches, Rec_Boatin, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	26
Blue River	5-86CW211A	Appropriated	Completed	Aquatic_Ec, Boreal Toad, CWCB instream flow water rights, CWCB natural lake level water rights, Flannelmouth Sucker, Rafting/kayaking/flatwater reaches, Riparian/Wetlands, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65

Table 3-4 Colorado Basin Nonconsumptive Identified Projects and Processes Summary (continued)

Project Name	Project Location	Project Type	Project Status	Basin Roundtable Attributes Identified	Project Protections	Reach ID
East Rifle Creek	5-80CW316	Appropriated	Completed	Aquatic_Ec, Bluehead Sucker, CWCB instream flow water rights, Riparian/Wetlands, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Crystal River	5-80CW119	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	52
Crystal River	5-80CW120	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	52
East Lake Creek	5-80CW123	Appropriated	Completed	Aquatic_Ec, Boreal Toad, Colorado River Cutthroat Trout , CWCB instream flow water rights, CWCB natural lake level water rights, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Eagle River	5-80CW124	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, Rec_Boatin, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	24
Berry Creek	5-80CW125	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, Riparian/Wetlands	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Eagle River	5-80CW126	Appropriated	Completed	Aquatic_Ec, Bluehead Sucker, CWCB instream flow water rights, Flannelmouth Sucker, Rafting/kayaking/flatwater reaches, Rec_Boatin, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	23, 24
South Fork Crystal River	5-80CW129	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, CWCB natural lake level water rights, Rafting/kayaking/flatwater reaches	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Eagle River	5-80CW134	Appropriated	Completed	Aquatic_Ec, Bluehead Sucker, CWCB instream flow water rights, CWCB natural lake level water rights, Flannelmouth Sucker, Geomorph_F, Rafting/kayaking/flatwater reaches, Rec_Boatin, recreational in-channel diversion structures, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	22, 23

Table 3-4 Colorado Basin Nonconsumptive Identified Projects and Processes Summary (continued)

Project Name	Project Location	Project Type	Project Status	Basin Roundtable Attributes Identified	Project Protections	Reach ID
Lost Trail Creek	5-80CW121	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, CWCB natural lake level water rights, Rafting/kayaking/flatwater reaches, Riparian/Wetlands, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Deep Creek	5-80CW312	Appropriated	Completed	Aquatic_Ec, Bluehead Sucker, Colorado River Cutthroat Trout , CWCB instream flow water rights, Flannelmouth Sucker, Riparian/Wetlands, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Trapper Creek	5-85CW634	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	59
East Rifle Creek	5-80CW317	Appropriated	Completed	Aquatic_Ec, Bluehead Sucker, CWCB instream flow water rights, Riparian/Wetlands, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Middle Rifle Creek	5-80CW319	Appropriated	Completed	Aquatic_Ec, Bluehead Sucker, CWCB instream flow water rights	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Rifle Creek	5-80CW321	Appropriated	Completed	Aquatic_Ec, Bluehead Sucker, CWCB instream flow water rights, Flannelmouth Sucker, Riparian/Wetlands, Roundtail Chub, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Colorado River	5-80CW446	Appropriated	Completed	Aquatic_Ec, Bluehead Sucker, CWCB instream flow water rights, Flannelmouth Sucker, Geomorph_F, Gold Metal Trout Streams, RipWet_Eco, Roundtail Chub, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	10
Colorado River	5-80CW447	Appropriated	Completed	Aquatic_Ec, Bluehead Sucker, Colorado River Cutthroat Trout , CWCB instream flow water rights, Flannelmouth Sucker, Geomorph_F, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Rec_Boatin, RipWet_Eco, Roundtail Chub, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	9, 16
Colorado River	5-80CW448	Appropriated	Completed	Aquatic_Ec, Bluehead Sucker, CWCB instream flow water rights, Flannelmouth Sucker, Geomorph_F, Gold Metal Trout Streams, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	10

Table 3-4 Colorado Basin Nonconsumptive Identified Projects and Processes Summary (continued)

Project Name	Project Location	Project Type	Project Status	Basin Roundtable Attributes Identified	Project Protections	Reach ID
Cattle Creek	5-85CW626	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, Geomorph_F, RipWet_Eco, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	0
North Fork Swan River	5-85CW627	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, Riparian/Wetlands, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Squaw Creek	5-80CW135	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Ranch Creek	5-90CW306A	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, Riparian/Wetlands, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	15
Cabin Creek	5-90CW313	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, CWCB natural lake level water rights, Riparian/Wetlands, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Ranch Creek	5-90CW290	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, Geomorph_F, Riparian/Wetlands, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	15
South Fork Ranch Creek	5-90CW291	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, Riparian/Wetlands, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Vasquez Creek	5-90CW292	Appropriated	Completed	Aquatic_Ec, Boreal Toad, Colorado River Cutthroat Trout , CWCB instream flow water rights, Geomorph_F, Riparian/Wetlands, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	15
Tenmile Creek	5-90CW294	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, Geomorph_F, Rec_Boatin, RipWet_Eco, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	16

Table 3-4 Colorado Basin Nonconsumptive Identified Projects and Processes Summary (continued)

Project Name	Project Location	Project Type	Project Status	Basin Roundtable Attributes Identified	Project Protections	Reach ID
Fraser River	5-90CW302	Appropriated	Completed	Aquatic_Ec, Boreal Toad, CWCB instream flow water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, Riparian/Wetlands, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	15
St Louis Creek	5-90CW303	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, Geomorph_F, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	15
St Louis Creek	5-90CW304	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, Geomorph_F, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	15
Middle Fork Ranch Creek	5-90CW288	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, Riparian/Wetlands, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Ranch Creek	5-90CW306	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, Riparian/Wetlands, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	15
Deadhorse Creek	5-90CW287	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, Geomorph_F, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	15
Fraser River	5-90CW307	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	15
Fraser River	5-90CW308	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, Rec_Boatin, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	16
Fraser River	5-90CW308B	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, Rec_Boatin, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	16

Table 3-4 Colorado Basin Nonconsumptive Identified Projects and Processes Summary (continued)

Project Name	Project Location	Project Type	Project Status	Basin Roundtable Attributes Identified	Project Protections	Reach ID
Hamilton Creek	5-90CW311	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, CWCB natural lake level water rights, Riparian/Wetlands, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Cabin Creek	5-90CW312	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, CWCB natural lake level water rights, Riparian/Wetlands, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Ranch Creek	5-90CW314	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, Geomorph_F, Riparian/Wetlands, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	15
Bobtail Creek	5-79CW164	Appropriated	Completed	Aquatic_Ec, Boreal Toad, Colorado River Cutthroat Trout , CWCB instream flow water rights, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Fraser River	5-90CW315	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, Rec_Boatin, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	16
St Louis Creek	5-90CW316	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, Geomorph_F, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	15
Ranch Creek	5-90CW305	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, Riparian/Wetlands, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	15
Blue River	5-87CW297	Appropriated	Completed	Aquatic_Ec, Audubon important bird areas, Bluehead Sucker, CWCB instream flow water rights, CWCB natural lake level water rights, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Rec_Boatin, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	4, 65
Antelope Creek	5-86CW225	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65

Table 3-4 Colorado Basin Nonconsumptive Identified Projects and Processes Summary (continued)

Project Name	Project Location	Project Type	Project Status	Basin Roundtable Attributes Identified	Project Protections	Reach ID
Plateau Creek	5-86CW226	Appropriated	Completed	Aquatic_Ec, Bluehead Sucker, CWCB instream flow water rights, Flannelmouth Sucker, Rafting/kayaking/flatwater reaches, RipWet_Eco, Roundtail Chub	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	60
East Meadow Creek	5-86CW228	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Black Gore Creek	5-86CW230	Enlarged	Completed	Aquatic_Ec, CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	25
Hat Creek	5-87CW271	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, CWCB natural lake level water rights, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
North Fork Colorado River	5-87CW276	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	6
Blue River	5-87CW293	Appropriated	Completed	Aquatic_Ec, Bluehead Sucker, Boreal Toad, CWCB instream flow water rights, CWCB natural lake level water rights, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	3
Blue River	5-87CW294	Appropriated	Completed	Aquatic_Ec, Bluehead Sucker, Boreal Toad, CWCB instream flow water rights, CWCB natural lake level water rights, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, recreational in-channel diversion structures, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	3
Fraser River	5-90CW289	Appropriated	Completed	Aquatic_Ec, Boreal Toad, Colorado River Cutthroat Trout , CWCB instream flow water rights, Geomorph_F, Riparian/Wetlands, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	15
Blue River	5-87CW296	Appropriated	Completed	Aquatic_Ec, Audubon important bird areas, Bluehead Sucker, CWCB instream flow water rights, CWCB natural lake level water rights, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Rec_Boatin, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	4

Table 3-4 Colorado Basin Nonconsumptive Identified Projects and Processes Summary (continued)

Project Name	Project Location	Project Type	Project Status	Basin Roundtable Attributes Identified	Project Protections	Reach ID
Snake River	5-86CW224	Appropriated	Completed	Aquatic_Ec, Boreal Toad, CWCB instream flow water rights, Riparian/Wetlands, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	2
Blue River	5-87CW298	Appropriated	Completed	Aquatic_Ec, Bluehead Sucker, CWCB instream flow water rights, CWCB natural lake level water rights, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Blue River	5-87CW299	Appropriated	Completed	Aquatic_Ec, Bluehead Sucker, CWCB instream flow water rights, CWCB natural lake level water rights, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Rec_Boatin, Riparian/Wetlands, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	5
Guller Creek	5-89CW179	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, Riparian/Wetlands	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
East Fork Red Dirt Creek	5-89CW183	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
West Fork Red Dirt Creek	5-89CW184	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Indiana Creek	5-89CW233	Appropriated	Completed	Aquatic_Ec, Boreal Toad, Colorado River Cutthroat Trout , CWCB instream flow water rights, CWCB natural lake level water rights, Riparian/Wetlands, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Hamilton Creek	5-90CW282	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, CWCB natural lake level water rights, Riparian/Wetlands, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Iron Creek	5-90CW283	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, Geomorph_F, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	15

Table 3-4 Colorado Basin Nonconsumptive Identified Projects and Processes Summary (continued)

Project Name	Project Location	Project Type	Project Status	Basin Roundtable Attributes Identified	Project Protections	Reach ID
Jim Creek	5-90CW286	Appropriated	Completed	Aquatic_Ec, Boreal Toad, Colorado River Cutthroat Trout , CWCB instream flow water rights, Riparian/Wetlands, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Blue River	5-87CW295	Appropriated	Completed	Aquatic_Ec, Audubon important bird areas, Bluehead Sucker, Boreal Toad, CWCB instream flow water rights, CWCB natural lake level water rights, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Eagle River	5-78W3788	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, Rec_Boatin, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	19
Booth Creek	5-77W3632	Appropriated	Completed	Aquatic_Ec, Boreal Toad, Colorado River Cutthroat Trout , CWCB instream flow water rights, CWCB natural lake level water rights, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Pitkin Creek	5-77W3633	Appropriated	Completed	Aquatic_Ec, Boreal Toad, Colorado River Cutthroat Trout , CWCB instream flow water rights, CWCB natural lake level water rights, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Black Gore Creek	5-77W3635	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	25
Gore Creek	5-77W3636	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Rec_Boatin, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	26
Gore Creek	5-77W3637	Appropriated	Completed	Aquatic_Ec, Boreal Toad, CWCB instream flow water rights, CWCB natural lake level water rights, Rafting/kayaking/flatwater reaches, Rec_Boatin, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	26
Willow Creek	5-78W3771	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	28

Table 3-4 Colorado Basin Nonconsumptive Identified Projects and Processes Summary (continued)

Project Name	Project Location	Project Type	Project Status	Basin Roundtable Attributes Identified	Project Protections	Reach ID
Cabin Creek	5-78W3781	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Williams Fork River	5-79CW168	Appropriated	Completed	Aquatic_Ec, Boreal Toad, CWCB instream flow water rights, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	17
Sopris Creek	5-78W3786	Appropriated	Completed	Aquatic_Ec, Boreal Toad, CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, RipWet_Eco	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	27
Deadman Gulch	5-77W3616	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Cross Creek	5-78W3791	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, CWCB natural lake level water rights, Riparian/Wetlands, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	28
West Cross Creek	5-78W3792	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, CWCB natural lake level water rights, Riparian/Wetlands, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Cross Creek	5-78W3793	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, CWCB natural lake level water rights, Riparian/Wetlands, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	28
Cross Creek	5-78W3795	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, CWCB natural lake level water rights, Riparian/Wetlands, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	28
Eagle River	5-78W3796	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, Rec_Boatin, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	19, 22

Table 3-4 Colorado Basin Nonconsumptive Identified Projects and Processes Summary (continued)

Project Name	Project Location	Project Type	Project Status	Basin Roundtable Attributes Identified	Project Protections	Reach ID
Two Elk Creek	5-78W3797	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	30
South Fork Eagle River	5-78W3801	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, RipWet_Eco, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	21
Eagle River	5-78W3811	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, Rec_Boatin, RipWet_Eco, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	19, 28
Cabin Creek	5-78W3783	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, Rafting/kayaking/flatwater reaches	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Snowmass Creek	5-76W2943B	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	46
Lost Man Creek	5-76W2937	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	36
Fraser River Denver Water Minimum Releases	Fraser River	Flow Protection	Completed	Aquatic_Ec, CWCB instream flow water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Boreal Toad -D, Colorado River Cutthroat Trout -D, CWCB Instream Flow Water Rights-D, Flannelmouth Sucker -D, Flatwater Boating -D, Other Fishing Streams and Lakes-D, Rafting / Kayaking / Flatwater Reaches-D, Recreational In-Channel Diversion Structures-D, River Otter-D, Roundtail Chub-D	15
St Louis Creek	5-90CW317	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, Geomorph_F, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	15
Lincoln Creek	5-76W2936	Appropriated	Completed	Aquatic_Ec, Bluehead Sucker, CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	36

Table 3-4 Colorado Basin Nonconsumptive Identified Projects and Processes Summary (continued)

Project Name	Project Location	Project Type	Project Status	Basin Roundtable Attributes Identified	Project Protections	Reach ID
Woody Creek	5-76W2938	Appropriated	Completed	CWCB instream flow water rights, Geomorph_F, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	66
West Sopris Creek	5-76W2939	Appropriated	Completed	CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, RipWet_Eco	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	48
East Sopris Creek	5-76W2940	Appropriated	Completed	CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, RipWet_Eco	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	0
Capitol Creek	5-76W2941	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	67
Gore Creek	5-77W3628	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, CWCB natural lake level water rights, Rec_Boatin, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	26
Snowmass Creek	5-76W2943A	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	46
Toponas Creek	5-77W3617	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
East Maroon Creek	5-76W2944	Appropriated	Completed	Aquatic_Ec, Boreal Toad, CWCB instream flow water rights, Geomorph_F, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	45
Maroon Creek	5-76W2945	Appropriated	Completed	Aquatic_Ec, Bluehead Sucker, Boreal Toad, CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	45

Table 3-4 Colorado Basin Nonconsumptive Identified Projects and Processes Summary (continued)

Project Name	Project Location	Project Type	Project Status	Basin Roundtable Attributes Identified	Project Protections	Reach ID
Castle Creek	5-76W2947	Appropriated	Completed	Aquatic_Ec, Boreal Toad, CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, Rec_Boatin, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	44
Roaring Fork River	5-76W2948	Appropriated	Completed	Aquatic_Ec, Audubon important bird areas, CWCB instream flow water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, Rec_Boatin, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	37, 40
Roaring Fork River	5-76W2949	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, Rec_Boatin, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	37
Roaring Fork River	5-76W2950	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, Rec_Boatin, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	37
Sopris Creek	5-76W2951	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	27
Turkey Creek	5-78W3815	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, Rafting/kayaking/flatwater reaches, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	28
Snowmass Creek	5-76W2943	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	46
Hunter Creek	5-80CW018M	Donated	Completed	Aquatic_Ec, Audubon important bird areas, CWCB instream flow water rights, Geomorph_F, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	43
Turkey Creek	5-78W3813	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	28

Table 3-4 Colorado Basin Nonconsumptive Identified Projects and Processes Summary (continued)

Project Name	Project Location	Project Type	Project Status	Basin Roundtable Attributes Identified	Project Protections	Reach ID
Hunter Creek	5-80CW018D	Donated	Completed	Aquatic_Ec, Audubon important bird areas, CWCB instream flow water rights, Geomorph_F, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	43
Hunter Creek	5-80CW018E	Donated	Completed	Aquatic_Ec, Audubon important bird areas, CWCB instream flow water rights, Geomorph_F, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	43
Hunter Creek	5-80CW018F	Donated	Completed	Aquatic_Ec, Audubon important bird areas, CWCB instream flow water rights, Geomorph_F, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	43
Hunter Creek	5-80CW018G	Donated	Completed	Aquatic_Ec, Audubon important bird areas, CWCB instream flow water rights, Geomorph_F, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	43
Hunter Creek	5-80CW018H	Donated	Completed	Aquatic_Ec, Audubon important bird areas, CWCB instream flow water rights, Geomorph_F, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	43
Hunter Creek	5-80CW018I	Donated	Completed	Aquatic_Ec, Audubon important bird areas, CWCB instream flow water rights, Geomorph_F, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	43
Hunter Creek	5-80CW018J	Donated	Completed	Aquatic_Ec, Audubon important bird areas, CWCB instream flow water rights, Geomorph_F, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	43
Hunter Creek	5-80CW018B	Donated	Completed	Aquatic_Ec, Audubon important bird areas, CWCB instream flow water rights, Geomorph_F, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	43
Hunter Creek	5-80CW018L	Donated	Completed	Aquatic_Ec, Audubon important bird areas, CWCB instream flow water rights, Geomorph_F, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	43

Table 3-4 Colorado Basin Nonconsumptive Identified Projects and Processes Summary (continued)

Project Name	Project Location	Project Type	Project Status	Basin Roundtable Attributes Identified	Project Protections	Reach ID
Hunter Creek	5-80CW018A	Donated	Completed	Aquatic_Ec, Audubon important bird areas, CWCB instream flow water rights, Geomorph_F, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	43
Hunter Creek	5-80CW018N	Donated	Completed	Aquatic_Ec, Audubon important bird areas, CWCB instream flow water rights, Geomorph_F, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	43
Hunter Creek	5-80CW018O	Donated	Completed	Aquatic_Ec, Audubon important bird areas, CWCB instream flow water rights, Geomorph_F, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	43
Cataract Creek	5-80CW037	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, CWCB natural lake level water rights, Rafting/kayaking/flatwater reaches, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Hunter Creek	5-80CW061	Donated	Completed	Aquatic_Ec, Audubon important bird areas, CWCB instream flow water rights, Geomorph_F, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	43
Hunter Creek	5-80CW062	Donated	Completed	Aquatic_Ec, Audubon important bird areas, CWCB instream flow water rights, Geomorph_F, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	43
Yule Creek	5-80CW114	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, CWCB natural lake level water rights, Rafting/kayaking/flatwater reaches, Riparian/Wetlands, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Gypsum Creek	5-80CW116	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, CWCB natural lake level water rights, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	33
Gypsum Creek	5-80CW117	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, CWCB natural lake level water rights, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	33

Table 3-4 Colorado Basin Nonconsumptive Identified Projects and Processes Summary (continued)

Project Name	Project Location	Project Type	Project Status	Basin Roundtable Attributes Identified	Project Protections	Reach ID
Hunter Creek	5-80CW018K	Donated	Completed	Aquatic_Ec, Audubon important bird areas, CWCB instream flow water rights, Geomorph_F, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	43
Kinney Creek	5-79CW182	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Abrams Creek	5-80CW118	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, RipWet_Eco	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	34
Bobtail Creek	5-79CW163	Appropriated	Completed	Aquatic_Ec, Boreal Toad, Colorado River Cutthroat Trout , CWCB instream flow water rights, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Steelman Creek	5-79CW166	Appropriated	Completed	Aquatic_Ec, Boreal Toad, Colorado River Cutthroat Trout , CWCB instream flow water rights, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Williams Fork River	5-79CW169	Appropriated	Completed	Aquatic_Ec, Boreal Toad, CWCB instream flow water rights, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	17
Williams Fork River	5-79CW170	Appropriated	Completed	Aquatic_Ec, Boreal Toad, CWCB instream flow water rights, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	17
Williams Fork River	5-79CW172	Appropriated	Completed	Aquatic_Ec, Boreal Toad, CWCB instream flow water rights, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	17
Williams Fork River	5-79CW173	Appropriated	Completed	Aquatic_Ec, Boreal Toad, CWCB instream flow water rights, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	17

Table 3-4 Colorado Basin Nonconsumptive Identified Projects and Processes Summary (continued)

Project Name	Project Location	Project Type	Project Status	Basin Roundtable Attributes Identified	Project Protections	Reach ID
Williams Fork River	5-79CW175	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	17
Hunter Creek	5-80CW018C	Donated	Completed	Aquatic_Ec, Audubon important bird areas, CWCB instream flow water rights, Geomorph_F, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	43
Williams Fork River	5-79CW181	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	17
Wearyman Creek	5-78W3814	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Williams Fork River	5-79CW183	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	17
Williams Fork River	5-79CW185	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, Rafting/kayaking/flatwater reaches, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	17
Hunter Creek	5-79CW186	Enlarged	Completed	Aquatic_Ec, Audubon important bird areas, Colorado River Cutthroat Trout , CWCB instream flow water rights, Geomorph_F, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	42
Midway Creek	5-79CW187	Enlarged	Completed	Aquatic_Ec, Audubon important bird areas, CWCB instream flow water rights, Geomorph_F, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	42
Hunter Creek	5-79CW188	Enlarged	Completed	Aquatic_Ec, Audubon important bird areas, CWCB instream flow water rights, Geomorph_F, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	42

Table 3-4 Colorado Basin Nonconsumptive Identified Projects and Processes Summary (continued)

Project Name	Project Location	Project Type	Project Status	Basin Roundtable Attributes Identified	Project Protections	Reach ID
No Name Creek	5-79CW189	Enlarged	Completed	Aquatic_Ec, Audubon important bird areas, CWCB instream flow water rights, Geomorph_F, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	42
Hunter Creek	5-79CW190	Enlarged	Completed	Aquatic_Ec, Audubon important bird areas, CWCB instream flow water rights, Geomorph_F, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	43
Egeria Creek	5-79CW363	Appropriated	Completed	Aquatic_Ec, Bluehead Sucker, CWCB instream flow water rights, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Williams Fork River	5-79CW180	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	17
DWB Diversion Enhancement	Hamilton Creek	Project	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, CWCB natural lake level water rights, Riparian/Wetlands, Significant Riparian/Wetland Communities	Colorado River Cutthroat Trout -D	65
Fryingpan and Roaring Forks Fishery Study	Fryingpan River	Information	Completed	Aquatic_Ec, Boreal Toad, Colorado River Cutthroat Trout , CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Rec_Boatin, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities		, 55
Report on Bureau of Rec 2006 Ruedi Release	Fryingpan River	Information	Completed	Aquatic_Ec, Boreal Toad, Colorado River Cutthroat Trout , CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Rec_Boatin, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities		, 55
Stream Fisheries Investigations	Fryingpan River below Ruedi Reservoir	Information	Completed	Aquatic_Ec, Boreal Toad, Colorado River Cutthroat Trout , CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Rec_Boatin, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities		, 55
Edwards - Eagle River - Restoration Project	Gore Creek	Project	Ongoing	Aquatic_Ec, CWCB instream flow water rights, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Rec_Boatin, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Lake Fishing-D, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, River and stream fishing-D, Roundtail Chub-D, Significant Fishing Waters-D, Stream Fishing-D, Trout Streams-D	26
Grand County Visitor preference survey	Grand County	Information	Completed	Aquatic_Ec, Bluehead Sucker, Flannelmouth Sucker, Rafting/kayaking/flatwater reaches, Rec_Boatin, Significant Riparian/Wetland Communities		11
	Gunnison and Colorado Rivers	Flow Protection	Completed	Aquatic_Ec, Audubon important bird areas, Bluehead Sucker, Bonytail Chub, Colorado Pikeminnow, Colorado River Cutthroat Trout , CWCB instream flow water rights, CWCB natural lake level water rights, Federally Listed Critical Habitat, Flannelmouth Sucker, Geomorph_F, Gold Metal Trout Streams, Humpback Chub, Rafting/kayaking/flatwater reaches, Razorback Sucker, Rec_Boatin, Riparian/Wetlands, RipWet_Eco, Roundtail Chub, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Colorado Pikeminnow -D, Flannelmouth Sucker -D, Humpback Chub-D, Razorback Sucker-D, Roundtail Chub-D, Significant Plant Communities-I	4, 6, 9, 10, 11, 12, 13, 14, 16, 65

Table 3-4 Colorado Basin Nonconsumptive Identified Projects and Processes Summary (continued)

Project Name	Project Location	Project Type	Project Status	Basin Roundtable Attributes Identified	Project Protections	Reach ID
Recommended Minimum flows along the Gunnison and Colorado Rivers	Gunnison and Colorado Rivers	Information	Completed	Aquatic_Ec, Audubon important bird areas, Bluehead Sucker, Bonytail Chub, Colorado Pikeminnow, Colorado River Cutthroat Trout , CWCB instream flow water rights, CWCB natural lake level water rights, Federally Listed Critical Habitat, Flannelmouth Sucker, Geomorph_F, Gold Metal Trout Streams, Humpback Chub, Rafting/kayaking/flatwater reaches, Razorback Sucker, Rec_Boatin, Riparian/Wetlands, RipWet_Eco, Roundtail Chub, Significant Riparian/Wetland Communities, Water_Qual		4, 6, 9, 10, 11, 12, 13, 14, 16, 65
River2D analysis	Five locations between Kremmling and Glenwood Springs	Information	Ongoing	Aquatic_Ec, Audubon important bird areas, Bluehead Sucker, CWCB instream flow water rights, CWCB natural lake level water rights, Flannelmouth Sucker, Rafting/kayaking/flatwater reaches, Rec_Boatin, Riparian/Wetlands, Significant Riparian/Wetland Communities		11, 12, 13
Wild and Scenic alternatives process and preliminary suitability	Gunnison River - BLM GJFO Wild and Scenic section	Flow Protection	Ongoing	Aquatic_Ec, Audubon important bird areas, Bluehead Sucker, Bonytail Chub, Colorado Pikeminnow, Federally Listed Critical Habitat, Flannelmouth Sucker, Humpback Chub, Rafting/kayaking/flatwater reaches, Razorback Sucker, Roundtail Chub, Water_Qual		14
Devils Thumb Ranch Private Rehab	Fraser River near County Rd. 85	Project	Completed	Aquatic_Ec, CWCB instream flow water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, Rec_Boatin, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual	Flatwater Boating -D, Other Fishing Streams and Lakes-D	16
Instream Flow Recommendations for Lincoln Creek and Roaring Fork River	Lincoln & Roaring Fork	Information	Completed	Aquatic_Ec, Bluehead Sucker, CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities		36, 65
Stream Improvement	Little Vasquez Creek	Project	Completed	Aquatic_Ec, Boreal Toad, Colorado River Cutthroat Trout , Geomorph_F, Riparian/Wetlands, Significant Riparian/Wetland Communities, Water_Qual	Colorado River Cutthroat Trout -D	15
Stream Improvement	Little Vasquez Creek	Project	Completed	Aquatic_Ec, Boreal Toad, Colorado River Cutthroat Trout , Geomorph_F, Riparian/Wetlands, Significant Riparian/Wetland Communities, Water_Qual	Colorado River Cutthroat Trout -D	15
Instream Flow Assessment of Maroon Creek	Maroon Creek	Information	Completed	Aquatic_Ec, Bluehead Sucker, Boreal Toad, CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, RipWet_Eco, Significant Riparian/Wetland Communities		45
Grand County Stream Management Plan	Multiple specific locations in Grand County	Information	Ongoing	Aquatic_Ec, Audubon important bird areas, Bluehead Sucker, CWCB instream flow water rights, CWCB natural lake level water rights, Flannelmouth Sucker, Rafting/kayaking/flatwater reaches, Rec_Boatin, Riparian/Wetlands, Significant Riparian/Wetland Communities		11, 12, 13
Red Top Valley ditch and 10825 water evaluation	North Fork of the Colorado	Flow Protection	Ongoing	Aquatic_Ec, CWCB instream flow water rights, Significant Riparian/Wetland Communities, Water_Qual		6
Trying to get 10825 water released from Lake Granby to increase flows and help with problems related to water temperature	North Fork of the Colorado	Flow Protection	Planned	Aquatic_Ec, CWCB instream flow water rights, Significant Riparian/Wetland Communities, Water_Qual	CWCB Instream Flow Water Rights-D, Significant Plant Communities-I	6
Pitkin County ISF filings with CWCB	Pitkin County streams	Flow protection	Planned	Aquatic_Ec, Bluehead Sucker, CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Rec_Boatin, recreational in-channel diversion structures, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual	Audubon Important Bird Areas-I, Bluehead Sucker-D, Boreal Toad -D, Colorado River Cutthroat Trout -D, CWCB Instream Flow Water Rights-D, Flannelmouth Sucker -D, Flatwater Boating -D, Rafting / Kayaking / Flatwater Reaches-D, Rare Plants-I, Roundtail Chub-D, Significant Plant Communities-I	40, 41
15 Mile Reach Programmatic Biological Opinion	Gunnison River - 15 Mile Reach	Flow Protection	Ongoing	Aquatic_Ec, Audubon important bird areas, Bluehead Sucker, Bonytail Chub, Colorado Pikeminnow, CWCB instream flow water rights, Federally Listed Critical Habitat, Flannelmouth Sucker, Humpback Chub, Rafting/kayaking/flatwater reaches, Razorback Sucker, Riparian/Wetlands, Roundtail Chub, Water_Qual	Colorado Pikeminnow -D, Humpback Chub-D, Rare Plants-I, Razorback Sucker-D, Significant Plant Communities-I	14, 65
Dwight Miller Private Rehab	Fraser River at confluence with Ranch Creek	Project	Completed	Aquatic_Ec, CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, Riparian/Wetlands, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-I, Flannelmouth Sucker -I, Flatwater Boating -I, Other Fishing Streams and Lakes-I, Roundtail Chub-I	15

Table 3-4 Colorado Basin Nonconsumptive Identified Projects and Processes Summary (continued)

Project Name	Project Location	Project Type	Project Status	Basin Roundtable Attributes Identified	Project Protections	Reach ID
Red Dirt Creek Bank Revegetation	East Fork Red Dirt Creek	Project	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, Significant Riparian/Wetland Communities	Bluehead Sucker-I, Bonytail Chub-I, Boreal Toad -I, Colorado Pikeminnow -I, Colorado River Cutthroat Trout -D, CWCB Instream Flow Water Rights-I, CWCB Natural Lake Level Water Rights-I, Federally Listed Critical Habitat-I, Flannelmouth Sucker -I, Flatwater Boating -D, Humpback Chub-I, Razorback Sucker-I, Roundtail Chub-I	65
Fraser River Enhancement Project #2 - Vazquez Confluence	Fraser River	Project	Completed	Aquatic_Ec, Boreal Toad, CWCB instream flow water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, Riparian/Wetlands, Significant Riparian/Wetland Communities, Water_Qual	Flatwater Boating -D, Other Fishing Streams and Lakes-D	15
Fraser River Enhancement Project #3 - Gauging station	Fraser River	Project	Completed	Aquatic_Ec, Boreal Toad, CWCB instream flow water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, Riparian/Wetlands, Significant Riparian/Wetland Communities, Water_Qual	Flatwater Boating -D, Other Fishing Streams and Lakes-D	15
Fraser Sedimentation Basin	Fraser River	I	In Progress	Aquatic_Ec, Boreal Toad, Colorado River Cutthroat Trout , CWCB instream flow water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, Riparian/Wetlands, Significant Riparian/Wetland Communities, Water_Qual		15
Share purchase in the Grand County Irrigated Land Company	Fraser River	Flow Protection	Completed	Aquatic_Ec, Boreal Toad, Colorado River Cutthroat Trout , CWCB instream flow water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, Rec_Boatin, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual	Boreal Toad -D, Colorado River Cutthroat Trout -D, CWCB Instream Flow Water Rights-D, Rafting / Kayaking / Flatwater Reaches-D, Rare Plants-I, Significant Plant Communities-I	15, 16
Fraser River sediment control project	Fraser River - just upstream of Denver diversion	Project	Ongoing	Aquatic_Ec, Boreal Toad, Colorado River Cutthroat Trout , CWCB instream flow water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, Riparian/Wetlands, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-I, Bonytail Chub-I, Boreal Toad -I, Colorado Pikeminnow -I, Colorado River Cutthroat Trout -I, CWCB Instream Flow Water Rights-I, CWCB Natural Lake Level Water Rights-I, Federally Listed Critical Habitat-I, Flannelmouth Sucker -I, Flatwater Boating -I, Humpback Chub-I, Razorback Sucker-I, Roundtail Chub-I	15
Planned Fraser River settling basin upgrades	Fraser River - just upstream of Denver diversion	Project	Planned	Aquatic_Ec, Boreal Toad, Colorado River Cutthroat Trout , CWCB instream flow water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, Riparian/Wetlands, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-I, Bonytail Chub-I, Boreal Toad -I, Colorado Pikeminnow -I, Colorado River Cutthroat Trout -I, CWCB Instream Flow Water Rights-I, CWCB Natural Lake Level Water Rights-I, Federally Listed Critical Habitat-I, Flannelmouth Sucker -I, Flatwater Boating -I, Humpback Chub-I, Razorback Sucker-I, Roundtail Chub-I	15
Planned Moffat firming DEIS	Fraser River - mainstem from Denver water diversion to forest boundary	Flow protection	Planned	Aquatic_Ec, Boreal Toad, Colorado River Cutthroat Trout , CWCB instream flow water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, Riparian/Wetlands, Significant Riparian/Wetland Communities, Water_Qual		15
A Study of Macroinvertebrate community responses to Winter Flows on the Fryingpan River	Fryingpan River	Information	Completed	Aquatic_Ec, Boreal Toad, Colorado River Cutthroat Trout , CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Rec_Boatin, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities		, 55
Ron Jones Private Rehab	Fraser River 1 mile upstream of confluence with Ranch Creek	Project	Completed	Aquatic_Ec, CWCB instream flow water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, Rec_Boatin, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-I, Flannelmouth Sucker -I, Flatwater Boating -I, Other Fishing Streams and Lakes-I, Roundtail Chub-I	16
Edgewater Private Bridge	Fraser River near Granby	Project	Completed	Aquatic_Ec, Geomorph_F, Rafting/kayaking/flatwater reaches, Rec_Boatin, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual	Flatwater Boating -D, Other Fishing Streams and Lakes-D	16
Fraser River Sediment Trap	Fraser River at Denver Water Moffat Diversion	Water Quality Protection	Completed	Aquatic_Ec, Boreal Toad, Colorado River Cutthroat Trout , CWCB instream flow water rights, Geomorph_F, Riparian/Wetlands, Significant Riparian/Wetland Communities, Water_Qual		15
Highway 40 Bridge	Fraser River downstream of Highway 40 bridge	Project	Completed	Aquatic_Ec, Geomorph_F, Rafting/kayaking/flatwater reaches, Rec_Boatin, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-I, Flannelmouth Sucker -I, Flatwater Boating -I, Other Fishing Streams and Lakes-I, Roundtail Chub-I	16
Water Use Study (domestic use correlation to maintaining a specific instream flow)	Fraser River inside Town of Winter Park	Information	Completed	Aquatic_Ec, Boreal Toad, Colorado River Cutthroat Trout , CWCB instream flow water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, Riparian/Wetlands, Significant Riparian/Wetland Communities, Water_Qual		15

Table 3-4 Colorado Basin Nonconsumptive Identified Projects and Processes Summary (continued)

Project Name	Project Location	Project Type	Project Status	Basin Roundtable Attributes Identified	Project Protections	Reach ID
Fraser River Enhancement Project (FREP) by Towns of Fraser and Winter Park	Fraser River Jim Creek to US Hwy 40	Flow Protection	Ongoing	Aquatic_Ec, Boreal Toad, Geomorph_F, Riparian/Wetlands, Significant Riparian/Wetland Communities, Water_Qual	Boreal Toad -D, CWCB Instream Flow Water Rights-D, Flatwater Boating -D, Other Fishing Streams and Lakes-D, Rare Plants-I, Significant Plant Communities-I	15
Winter Park Rec. Assn. Snow making pumpback and storage	Fraser River Jim Creek to US Hwy 40	Flow Protection	Ongoing	Aquatic_Ec, Boreal Toad, Geomorph_F, Riparian/Wetlands, Significant Riparian/Wetland Communities, Water_Qual	Boreal Toad -D, CWCB Instream Flow Water Rights-D, Flatwater Boating -D, Other Fishing Streams and Lakes-D, Rare Plants-I, Significant Plant Communities-I	15
Eric Pete's Private Rehab	Fraser River near County Rd. 83	Project	Completed	Aquatic_Ec, CWCB instream flow water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, Rec_Boatin, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual	Flatwater Boating -D, Other Fishing Streams and Lakes-D	16
Mike Rapuchi Private Rehab	Fraser River near County Rd. 84	Project	Completed	Aquatic_Ec, CWCB instream flow water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, Rec_Boatin, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual	Flatwater Boating -D, Other Fishing Streams and Lakes-D	16
Planned BLM studies and management plan	Roan Plateau	Information	Planned	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual		59
USFS bypass flow below Moffat collection system	Fraser River - mainstem from Denver water diversion to forest boundary	Flow protection	Ongoing	Aquatic_Ec, Boreal Toad, Colorado River Cutthroat Trout , CWCB instream flow water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, Riparian/Wetlands, Significant Riparian/Wetland Communities, Water_Qual	Audubon Important Bird Areas-I, Bluehead Sucker-D, Boreal Toad -D, Colorado River Cutthroat Trout -D, CWCB Instream Flow Water Rights-D, Flannelmouth Sucker -D, Flatwater Boating -D, Rafting / Kayaking / Flatwater Reaches-D, Rare Plants-I, Roundtail Chub-D, Significant Plant Communities-I	15
Carryover storage in Williams fork for environmental flows	Williams Fork River	Flow Protection	Proposed	Aquatic_Ec, Boreal Toad, CWCB instream flow water rights, Flannelmouth Sucker, Geomorph_F, Rafting/kayaking/flatwater reaches, Significant Riparian/Wetland Communities, Water_Qual		17, 18
Ranch Creek Denver Water Minimum Releases	Ranch Creek	Flow Protection	Completed	Aquatic_Ec, CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, Riparian/Wetlands, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Boreal Toad -D, Colorado River Cutthroat Trout -D, CWCB Instream Flow Water Rights-D, Flannelmouth Sucker -D, Flatwater Boating -D, Other Fishing Streams and Lakes-D, Rafting / Kayaking / Flatwater Reaches-D, Recreational In-Channel Diversion Structures-D, River Otter-D, Roundtail Chub-D	15
Negotiations with Denver Water	Upper Fraser River and tributaries	Flow Protection	Ongoing	Aquatic_Ec, Boreal Toad, Colorado River Cutthroat Trout , CWCB instream flow water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, Rec_Boatin, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual		15, 16, 65
Platte & Colorado Simulation Model (PACSM)	Upper Fraser River and tributaries	Information	Ongoing	Aquatic_Ec, Boreal Toad, Colorado River Cutthroat Trout , CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, Rec_Boatin, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual		15, 16, 65
TNC Study for Denver re: maximizing operations to leave more flows	Upper Fraser River and tributaries	Information	Ongoing	Aquatic_Ec, Boreal Toad, Colorado River Cutthroat Trout , CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, Rec_Boatin, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual		15, 16, 65
Habitat Improvement	Vasquez Creek	Project	Completed	Aquatic_Ec, Boreal Toad, Colorado River Cutthroat Trout , CWCB instream flow water rights, Geomorph_F, Riparian/Wetlands, Significant Riparian/Wetland Communities, Water_Qual	Colorado River Cutthroat Trout -D	15
Vasquez Creek Denver Water Minimum Releases	Vasquez Creek	Flow Protection	Completed	Aquatic_Ec, Boreal Toad, Colorado River Cutthroat Trout , CWCB instream flow water rights, Geomorph_F, Riparian/Wetlands, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Boreal Toad -D, Colorado River Cutthroat Trout -D, CWCB Instream Flow Water Rights-D, Flannelmouth Sucker -D, Flatwater Boating -D, Other Fishing Streams and Lakes-D, Rafting / Kayaking / Flatwater Reaches-D, Recreational In-Channel Diversion Structures-D, River Otter-D, Roundtail Chub-D	15
Vasquez Creek Instream Fish Habitat	Vasquez Creek	Project	Completed	Aquatic_Ec, Boreal Toad, Geomorph_F, Riparian/Wetlands, Significant Riparian/Wetland Communities, Water_Qual		15
USFS bypass flow below Moffat collection system	Vasquez Creek - Denver diversion to forest boundary	Flow Protection	Ongoing	Aquatic_Ec, Boreal Toad, Colorado River Cutthroat Trout , CWCB instream flow water rights, Geomorph_F, Riparian/Wetlands, Significant Riparian/Wetland Communities, Water_Qual	Boreal Toad -D, Colorado River Cutthroat Trout -D, CWCB Instream Flow Water Rights-D, CWCB Natural Lake Level Water Rights-D, Rare Plants-I, Significant Plant Communities-I	15

Table 3-4 Colorado Basin Nonconsumptive Identified Projects and Processes Summary (continued)

Project Name	Project Location	Project Type	Project Status	Basin Roundtable Attributes Identified	Project Protections	Reach ID
Moffat Project	Upper Fraser River and tributaries	Project	Ongoing	Aquatic_Ec, Boreal Toad, Colorado River Cutthroat Trout , CWCB instream flow water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, Rec_Boatin, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual		15, 16, 65
Williams Fork Reservoir Denver Water Minimum Releases	Williams Fork Reservoir	Flow Protection	Completed	Aquatic_Ec, Geomorph_F	Bluehead Sucker-D, Boreal Toad -D, Colorado River Cutthroat Trout -D, CWCB Instream Flow Water Rights-D, Flannelmouth Sucker -D, Flatwater Boating -D, Other Fishing Streams and Lakes-D, Rafting / Kayaking / Flatwater Reaches-D, Recreational In-Channel Diversion Structures-D, River Otter-D, Roundtail Chub-D	18
"303d listing from Hammond Ditch, Ranch Creek, St. Louis Creek, on Fraser"	Upper Fraser River and tributaries	Project	0	Aquatic_Ec, Boreal Toad, Colorado River Cutthroat Trout , CWCB instream flow water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, Rec_Boatin, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual		15, 16, 65
GCWIN	Williams Fork River	Information	Ongoing	Aquatic_Ec, Boreal Toad, CWCB instream flow water rights, Flannelmouth Sucker, Geomorph_F, Rafting/kayaking/flatwater reaches, Significant Riparian/Wetland Communities, Water_Qual		17, 18
Grand County Stream Management Plan	Williams Fork River	Information	Ongoing	Aquatic_Ec, Boreal Toad, CWCB instream flow water rights, Flannelmouth Sucker, Geomorph_F, Rafting/kayaking/flatwater reaches, Significant Riparian/Wetland Communities, Water_Qual		17, 18
Moffat Firming Project EIS	Williams Fork River	Information	Ongoing	Aquatic_Ec, Boreal Toad, CWCB instream flow water rights, Flannelmouth Sucker, Geomorph_F, Rafting/kayaking/flatwater reaches, Significant Riparian/Wetland Communities, Water_Qual		17, 18
possible purchase of water rights	Williams Fork River	Flow Protection	Proposed	Aquatic_Ec, Boreal Toad, CWCB instream flow water rights, Flannelmouth Sucker, Geomorph_F, Rafting/kayaking/flatwater reaches, Significant Riparian/Wetland Communities, Water_Qual	Audubon Important Bird Areas-I, Bluehead Sucker-D, Boreal Toad -D, Colorado River Cutthroat Trout -D, CWCB Instream Flow Water Rights-D, Flannelmouth Sucker -D, Flatwater Boating -D, Rafting / Kayaking / Flatwater Reaches-D, Rare Plants-I, Roundtail Chub-D, Significant Plant Communities-I	17, 18
Stream Management/Adaptive Management monitoring opportunity for enhancements from Denver	Williams Fork River	Information	Planned	Aquatic_Ec, Boreal Toad, CWCB instream flow water rights, Flannelmouth Sucker, Geomorph_F, Rafting/kayaking/flatwater reaches, Significant Riparian/Wetland Communities, Water_Qual		17, 18
Windy Gap Bypass Channel	Windy Gap	Project	Ongoing	Aquatic_Ec, Bluehead Sucker, CWCB instream flow water rights, Geomorph_F, Rec_Boatin, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual	Aquatic_Ec-D, Bluehead Sucker-D, RipWet_Eco-I, Significant Riparian/Wetland Communities-I	16
Spruce Creek	5-85CW650	Appropriated	Completed	Aquatic_Ec, Boreal Toad, Colorado River Cutthroat Trout , CWCB instream flow water rights, CWCB natural lake level water rights, Riparian/Wetlands, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
North Thompson Creek	5-75W2775	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Fish Barrier	West Fork of Red Dirt Creek	Project	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, Riparian/Wetlands, Significant Riparian/Wetland Communities	Colorado River Cutthroat Trout -D	65
Constructed fish barrier to isolate nonnatives from Colorado Cutthroat Trout	South Fork of Ranch Creek above Denver diversion	Project	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, Riparian/Wetlands, Significant Riparian/Wetland Communities	Colorado River Cutthroat Trout -D	65
Colorado Cutthroat Trout habitat restoration and restocking	East Fork of Parachute Creek	Project	Ongoing	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual	Colorado River Cutthroat Trout -D	59

Table 3-4 Colorado Basin Nonconsumptive Identified Projects and Processes Summary (continued)

Project Name	Project Location	Project Type	Project Status	Basin Roundtable Attributes Identified	Project Protections	Reach ID
Roaring Fork Watershed Assessment	Roaring Fork River	S	Completed	Aquatic_Ec, Audubon important bird areas, Bluehead Sucker, CWCB instream flow water rights, CWCB natural lake level water rights, Flannelmouth Sucker, Geomorph_F, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Rec_Boatin, recreational in-channel diversion structures, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Lake Fishing-D, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, River and stream fishing-D, Roundtail Chub-D, Signification Fishing Waters-D, Stream Fishing-D, Trout Streams-D	40, 41
Roaring Fork Watershed Assessment -Phase 2	Roaring Fork River	S	In Progress	Aquatic_Ec, Bluehead Sucker, CWCB instream flow water rights, Geomorph_F, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Rec_Boatin, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Lake Fishing-D, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, River and stream fishing-D, Roundtail Chub-D, Signification Fishing Waters-D, Stream Fishing-D, Trout Streams-D	40
State of the Roaring Fork Watershed Report	Roaring Fork Watershed	Information	Completed	Aquatic_Ec, Audubon important bird areas, Bluehead Sucker, CWCB instream flow water rights, CWCB natural lake level water rights, Flannelmouth Sucker, Geomorph_F, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Rec_Boatin, recreational in-channel diversion structures, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual		37, 40, 41
"Analysis of Remedial Methods by EPA, CDPHE and NWCCOG"	Snake River	Project	Ongoing	Aquatic_Ec, Boreal Toad, CWCB instream flow water rights, Riparian/Wetlands, Significant Riparian/Wetland Communities, Water_Qual		2
319 Grant with DRMS for project	Snake River	Project	Ongoing	Aquatic_Ec, Boreal Toad, CWCB instream flow water rights, Riparian/Wetlands, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-I, Bonytail Chub-I, Boreal Toad -I, Colorado Pikeminnow -I, Colorado River Cutthroat Trout -I, CWCB Instream Flow Water Rights-I, CWCB Natural Lake Level Water Rights-I, Federally Listed Critical Habitat-I, Flannelmouth Sucker -I, Flatwater Boating -I, Humpback Chub-I, Razorback Sucker-I, Roundtail Chub-I	2
CDOW fish shocking in lower segment	Snake River	Information	Ongoing	Aquatic_Ec, Boreal Toad, CWCB instream flow water rights, Riparian/Wetlands, Significant Riparian/Wetland Communities, Water_Qual		2
Likely Superfund treatment of Pennsylvania Mine	Snake River	Information	Planned	Aquatic_Ec, Boreal Toad, CWCB instream flow water rights, Riparian/Wetlands, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-I, Bonytail Chub-I, Boreal Toad -I, Colorado Pikeminnow -I, Colorado River Cutthroat Trout -I, CWCB Instream Flow Water Rights-I, CWCB Natural Lake Level Water Rights-I, Federally Listed Critical Habitat-I, Flannelmouth Sucker -I, Flatwater Boating -I, Humpback Chub-I, Razorback Sucker-I, Roundtail Chub-I	2
Moffet Tunnel Expansion Project -EIS and other data from Denver Water	Upper Fraser River and tributaries	Information	Planned	Aquatic_Ec, Boreal Toad, Colorado River Cutthroat Trout , CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, Rec_Boatin, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual		15, 16, 65
Stream Improvement	South Fork of Ranch Creek	Project	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, Riparian/Wetlands, Significant Riparian/Wetland Communities	Colorado River Cutthroat Trout -D	65
USFS bypass flow below Moffat collection system	Ranch Creek - Denver diversion to forest boundary	Flow Protection	Ongoing	Aquatic_Ec, CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, Riparian/Wetlands, Significant Riparian/Wetland Communities, Water_Qual	CWCB Instream Flow Water Rights-D, CWCB Natural Lake Level Water Rights-D, Rare Plants-I, Significant Plant Communities-I	15
St. Louis Creek Denver Water Minimum Releases	St. Louis Creek	Flow Protection	Completed	Aquatic_Ec, CWCB instream flow water rights, Geomorph_F, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Boreal Toad -D, Colorado River Cutthroat Trout -D, CWCB Instream Flow Water Rights-D, Flannelmouth Sucker -D, Flatwater Boating -D, Other Fishing Streams and Lakes-D, Rafting / Kayaking / Flatwater Reaches-D, Recreational In-Channel Diversion Structures-D, River Otter-D, Roundtail Chub-D	15
St. Louis Creek Instream Fish Habitat	St. Louis Creek	Project	Completed	Aquatic_Ec, CWCB instream flow water rights, Geomorph_F, Significant Riparian/Wetland Communities, Water_Qual		15
Administratively required bypass flow from Moffat	St. Louis Creek - forest boundary to Denver diversion	Flow protection	Ongoing	Aquatic_Ec, CWCB instream flow water rights, Geomorph_F, Significant Riparian/Wetland Communities, Water_Qual	CWCB Instream Flow Water Rights-D, CWCB Natural Lake Level Water Rights-D, Rare Plants-I, Significant Plant Communities-I	15
ATV fording repairs	Trail Creek	Project	Completed	Aquatic_Ec, Colorado River Cutthroat Trout	Colorado River Cutthroat Trout -D	65
"Stream rehabilitation project, livestock exclosures, and nonnative removal"	Trapper Creek	Project	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual	Colorado River Cutthroat Trout -D	59
CWCD loan to East Fork Mutual Irrigation Co. for ditch repair	Troublesome Creek	Information	Ongoing	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker -D, Roundtail Chub-D, Significant Plant Communities-I	65

Table 3-4 Colorado Basin Nonconsumptive Identified Projects and Processes Summary (continued)

Project Name	Project Location	Project Type	Project Status	Basin Roundtable Attributes Identified	Project Protections	Reach ID
Troublesome Creek Fishing Project	Troublesome Creek	Project	Completed	Aquatic_Ec	Flatwater Boating -D, Other Fishing Streams and Lakes-D	65
Upper Colorado Wild & Scenic Alternative Management Plan Stakeholder Group	Upper Colorado River	Project	Planned	Aquatic_Ec, Bluehead Sucker, Colorado River Cutthroat Trout , CWCB instream flow water rights, Flannelmouth Sucker, Geomorph_F, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Rec_Boatin, Riparian/Wetlands, RipWet_Eco, Roundtail Chub, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Boreal Toad -D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker -D, Flatwater Boating -D, Other Fishing Streams and Lakes-D, Rafting / Kayaking / Flatwater Reaches-D, Rare Plants-I, Roundtail Chub-D, Significant Plant Communities-I	6, 9, 10, 11, 12, 16
Snake River erosion control project	Snake River above Dillon	Water Quality Protection	Completed	Aquatic_Ec, CWCB instream flow water rights, Significant Riparian/Wetland Communities, Water_Qual	CWCB Instream Flow Water Rights-I	2
Green Mountain Pumpback study	Blue River below Green Mountain	Information	Ongoing	Aquatic_Ec, Bluehead Sucker, CWCB instream flow water rights, CWCB natural lake level water rights, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Rec_Boatin, Riparian/Wetlands, Significant Riparian/Wetland Communities		5
Black Gore Creek Sediment Removal	Black Gore Creek	Water Quality Protection	Completed	Aquatic_Ec, CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-I, Bonytail Chub-I, Boreal Toad -I, Colorado Pikeminnow -I, Colorado River Cutthroat Trout -I, CWCB Instream Flow Water Rights-I, CWCB Natural Lake Level Water Rights-I, Federally Listed Critical Habitat-I, Flannelmouth Sucker -I, Flatwater Boating -I, Humpback Chub-I, Razorback Sucker-I, Roundtail Chub-I	25
Blue Valley Ranch Fishery Project	Blue River above confluence with Colorado River	Project	Completed	Aquatic_Ec, Bluehead Sucker, CWCB instream flow water rights, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Rec_Boatin, Riparian/Wetlands, Significant Riparian/Wetland Communities	Flatwater Boating -D, Other Fishing Streams and Lakes-D	5
Aquatic habitat study and restoration project (Town of Breckenridge)	Blue River above Dillon	Project	Planned	Aquatic_Ec, Bluehead Sucker, Boreal Toad, CWCB instream flow water rights, CWCB natural lake level water rights, Flannelmouth Sucker, Rafting/kayaking/flatwater reaches, Riparian/Wetlands, Significant Riparian/Wetland Communities		65
Restoration project	Blue River above Dillon	Project	Completed	Aquatic_Ec, Bluehead Sucker, Boreal Toad, CWCB instream flow water rights, CWCB natural lake level water rights, Flannelmouth Sucker, Rafting/kayaking/flatwater reaches, Riparian/Wetlands, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Boreal Toad -D, Colorado River Cutthroat Trout -D, CWCB Instream Flow Water Rights-D, CWCB Natural Lake Level Water Rights-D, Flannelmouth Sucker -D, Rafting / Kayaking / Flatwater Reaches-D, Rare Plants-I, Roundtail Chub-D, Significant Plant Communities-I	65
CDOT I70 sediment control plan	Blue River below Dillon Reservoir	Project	Ongoing	Aquatic_Ec, Audubon important bird areas, Bluehead Sucker, Boreal Toad, CWCB instream flow water rights, CWCB natural lake level water rights, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Rec_Boatin, recreational in-channel diversion structures, Significant Riparian/Wetland Communities	Bluehead Sucker-I, Bonytail Chub-I, Boreal Toad -I, Colorado Pikeminnow -I, Colorado River Cutthroat Trout -I, CWCB Instream Flow Water Rights-I, CWCB Natural Lake Level Water Rights-I, Federally Listed Critical Habitat-I, Flannelmouth Sucker -I, Flatwater Boating -I, Humpback Chub-I, Razorback Sucker-I, Roundtail Chub-I	3, 4, 65
CDOW Fish surveys/status of Gold Medal fishery	Blue River below Dillon Reservoir	Information	Ongoing	Aquatic_Ec, Audubon important bird areas, Bluehead Sucker, Boreal Toad, CWCB instream flow water rights, CWCB natural lake level water rights, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Rec_Boatin, recreational in-channel diversion structures, Significant Riparian/Wetland Communities		3, 4, 65
Design and construction of kayak park for RICD	Blue River below Dillon Reservoir	Project	Planned	Aquatic_Ec, Audubon important bird areas, Bluehead Sucker, Boreal Toad, CWCB instream flow water rights, CWCB natural lake level water rights, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Rec_Boatin, recreational in-channel diversion structures, Significant Riparian/Wetland Communities	Recreational In-Channel Diversion Structures-D	3, 4, 65
Fraser River Enhancement Project #1 - Maryvale	Fraser River	Project	Completed	Aquatic_Ec, Boreal Toad, CWCB instream flow water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, Riparian/Wetlands, Significant Riparian/Wetland Communities, Water_Qual	Flatwater Boating -D, Other Fishing Streams and Lakes-D	15
Grand county stream Management Plan -- Phase III restoration	Blue River below Green Mountain	Information	Ongoing	Aquatic_Ec, Bluehead Sucker, CWCB instream flow water rights, CWCB natural lake level water rights, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Rec_Boatin, Riparian/Wetlands, Significant Riparian/Wetland Communities		5
Battlement Reservoir #3 Dam reconstruction to enhance recreational & environmental opportunities	Battlement Creek	I	Planned	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights	Bluehead Sucker-D, Bonytail Chub-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Flatwater Boating-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Lake Fishing-D, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Roundtail Chub-D, Significant Fishing Waters-D, Signification Fishing Waters-D, Stream Fishing-D, Trout Streams-D	65
Implement recommendations to control flow fluctuations as specified in forthcoming stream plan	Blue River below Green Mountain	Flow Protection	Planned	Aquatic_Ec, Bluehead Sucker, CWCB instream flow water rights, CWCB natural lake level water rights, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Rec_Boatin, Riparian/Wetlands, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Flannelmouth Sucker -D, Roundtail Chub-D	5

Table 3-4 Colorado Basin Nonconsumptive Identified Projects and Processes Summary (continued)

Project Name	Project Location	Project Type	Project Status	Basin Roundtable Attributes Identified	Project Protections	Reach ID
Tudor Jones reclamation for trout habitat	Blue River below Green Mountain	Project	0	Aquatic_Ec, Bluehead Sucker, CWCB instream flow water rights, CWCB natural lake level water rights, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Rec_Boatin, Riparian/Wetlands, Significant Riparian/Wetland Communities	Flatwater Boating -D, Other Fishing Streams and Lakes-D	5
Blue River wetlands project	Blue River downstream of Intrawest Golf	Water Quality Protection	Completed	Aquatic_Ec, Bluehead Sucker, Boreal Toad, CWCB instream flow water rights, CWCB natural lake level water rights, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Significant Riparian/Wetland Communities	Bluehead Sucker-I, Boreal Toad -I, Flannelmouth Sucker -I, Flatwater Boating -I, Roundtail Chub-I, Significant Plant Communities-I	65
Boreal toad breeding ground monitoring	Buzzard Creek	Information	Ongoing	Aquatic_Ec, Bluehead Sucker, Boreal Toad, Colorado River Cutthroat Trout , CWCB instream flow water rights, Flannelmouth Sucker, Rafting/kayaking/flatwater reaches, Riparian/Wetlands, RipWet_Eco		60
Channel Stabilization work	Buzzard Creek	Project	Completed	Aquatic_Ec, Bluehead Sucker, Boreal Toad, Colorado River Cutthroat Trout , CWCB instream flow water rights, Flannelmouth Sucker, Rafting/kayaking/flatwater reaches, Riparian/Wetlands, RipWet_Eco	Bluehead Sucker-I, Bonytail Chub-I, Boreal Toad -I, Colorado Pikeminnow -I, Colorado River Cutthroat Trout -I, CWCB Instream Flow Water Rights-I, CWCB Natural Lake Level Water Rights-I, Federally Listed Critical Habitat-I, Flannelmouth Sucker -I, Flatwater Boating -I, Humpback Chub-I, Razorback Sucker-I, Roundtail Chub-I	60
Cabin Creek Riparian Restoration	Cabin Creek	Project	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights		65
Wild and Scenic eligibility and alternatives process	Carr and Roan Creeks	Flow protection	Ongoing	Aquatic_Ec, Bluehead Sucker, Colorado River Cutthroat Trout , CWCB instream flow water rights, Flannelmouth Sucker, Geomorph_F, Riparian/Wetlands, RipWet_Eco, Roundtail Chub, Significant Riparian/Wetland Communities		63
Shoshone Operations	Co River - Glenwood Canyon	Project	Planned	Audubon important bird areas, Bluehead Sucker, CWCB natural lake level water rights, Flannelmouth Sucker, Rafting/kayaking/flatwater reaches, Riparian/Wetlands, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Flannelmouth Sucker-D	13
Town of Silverthorne information for RICD and quantification of flows	Blue River below Dillon Reservoir	Information	Ongoing	Aquatic_Ec, Audubon important bird areas, Bluehead Sucker, Boreal Toad, CWCB instream flow water rights, CWCB natural lake level water rights, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Rec_Boatin, recreational in-channel diversion structures, Significant Riparian/Wetland Communities		3, 4, 65
Roan Creek	5-95CW291	Appropriated	Completed	Aquatic_Ec, Bluehead Sucker, Colorado River Cutthroat Trout , CWCB instream flow water rights, Flannelmouth Sucker, Geomorph_F, Riparian/Wetlands, RipWet_Eco, Roundtail Chub	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	63
Vasquez Creek	5-90CW318	Appropriated	Completed	Aquatic_Ec, Boreal Toad, Colorado River Cutthroat Trout , CWCB instream flow water rights, Geomorph_F, Riparian/Wetlands, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	15
Snowmass Creek	5-92CW280	Enlarged	Completed	Aquatic_Ec, CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	46
Snowmass Creek	5-92CW281	Enlarged	Completed	Aquatic_Ec, CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	46
Colorado River (15 mile reach)	5-92CW286	Appropriated	Completed	Aquatic_Ec, Audubon important bird areas, Bluehead Sucker, Bonytail Chub, Colorado Pikeminnow, CWCB instream flow water rights, Federally Listed Critical Habitat, Flannelmouth Sucker, Humpback Chub, Rafting/kayaking/flatwater reaches, Razorback Sucker, Riparian/Wetlands, Roundtail Chub, Water_Qual	Bluehead Sucker-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	14, 65

Table 3-4 Colorado Basin Nonconsumptive Identified Projects and Processes Summary (continued)

Project Name	Project Location	Project Type	Project Status	Basin Roundtable Attributes Identified	Project Protections	Reach ID
Colorado River (15 mile reach)	5-94CW330	Enlarged	Completed	Aquatic_Ec, Audubon important bird areas, Bluehead Sucker, Bonytail Chub, Colorado Pikeminnow, CWCB instream flow water rights, Federally Listed Critical Habitat, Flannelmouth Sucker, Humpback Chub, Rafting/kayaking/flatwater reaches, Razorback Sucker, Riparian/Wetlands, Roundtail Chub, Water_Qual	Bluehead Sucker-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	14, 65
Red Dirt Creek	5-95CW286	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, Riparian/Wetlands, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Norman Creek	5-95CW287	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Carr Creek	5-95CW288	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, Geomorph_F, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	63
Basin of Last Resort Sediment Control Project	Black Gore Creek	Water Quality Protection	Completed	Aquatic_Ec, CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-I, Bonytail Chub-I, Boreal Toad -I, Colorado Pikeminnow -I, Colorado River Cutthroat Trout -I, CWCB Instream Flow Water Rights-I, CWCB Natural Lake Level Water Rights-I, Federally Listed Critical Habitat-I, Flannelmouth Sucker -I, Flatwater Boating -I, Humpback Chub-I, Razorback Sucker-I, Roundtail Chub-I	25
Egeria Creek	5-95CW290	Appropriated	Completed	Aquatic_Ec, Bluehead Sucker, CWCB instream flow water rights	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
CDOT Black Gore sediment control action plan	Black Gore and Gore Creeks	Information	Completed	Aquatic_Ec, Boreal Toad, CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Rec_Boatin, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-I, Bonytail Chub-I, Boreal Toad -I, Colorado Pikeminnow -I, Colorado River Cutthroat Trout -I, CWCB Instream Flow Water Rights-I, CWCB Natural Lake Level Water Rights-I, Federally Listed Critical Habitat-I, Flannelmouth Sucker -I, Flatwater Boating -I, Humpback Chub-I, Razorback Sucker-I, Roundtail Chub-I	25, 26
Cattle Creek	5-97CW273	Enlarged	Completed	Aquatic_Ec, CWCB instream flow water rights, Geomorph_F, RipWet_Eco, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	0
Castle Creek	98/5/ACQ-01A	Donated	Completed	Aquatic_Ec, CWCB instream flow water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, Rec_Boatin, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	44

Table 3-4 Colorado Basin Nonconsumptive Identified Projects and Processes Summary (continued)

Project Name	Project Location	Project Type	Project Status	Basin Roundtable Attributes Identified	Project Protections	Reach ID
Castle Creek	98/5/ACQ-01B	Donated	Completed	Aquatic_Ec, CWCB instream flow water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, Rec_Boatin, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	44
Castle Creek	98/5/ACQ-01C	Donated	Completed	Aquatic_Ec, CWCB instream flow water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, Rec_Boatin, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	44
Castle Creek	98/5/ACQ-01D	Donated	Completed	Aquatic_Ec, CWCB instream flow water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, Rec_Boatin, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	44
Abrams Ck Cutthroat Improvement	Abrams Creek	Project	Planned	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, RipWet_Eco	Aquatic_Ec-D, Colorado River Cutthroat Trout-D	34
French Gulch Superfund Program	Approximately 2.2 miles upstream of confluence of French Creek and Blue River	Water Quality Protection	Completed	Aquatic_Ec, Boreal Toad, Colorado River Cutthroat Trout , CWCB instream flow water rights, Riparian/Wetlands, Significant Riparian/Wetland Communities, Significant Riparian/Wetland Plants, Signification Fishing Waters	Boreal Toad -I, Federally Listed Critical Habitat-I, Other Fishing Streams and Lakes-D, Rare Plants-I, Significant Plant Communities-I	65
BLM Resource Management Plan	Colorado River -- Windy Gap Reservoir to Kremmling	Information	Ongoing	Aquatic_Ec, Bluehead Sucker, Colorado River Cutthroat Trout , CWCB instream flow water rights, Flannelmouth Sucker, Geomorph_F, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Rec_Boatin, RipWet_Eco, Roundtail Chub, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Boreal Toad -D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker -D, Flatwater Boating -D, Other Fishing Streams and Lakes-D, Rafting / Kayaking / Flatwater Reaches-D, Rare Plants-I, Roundtail Chub-D, Significant Plant Communities-I	6, 9, 16
Castle Creek	5-95CW289	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Under consideration for Wild and Scenic designation	Deep Creek	Information	Ongoing	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, Riparian/Wetlands, Significant Riparian/Wetland Communities		65
Wild and Scenic eligibility and alternatives process	Colorado River - Piney to Eagle River	Flow Protection	Ongoing	Aquatic_Ec, Bluehead Sucker, CWCB instream flow water rights, Flannelmouth Sucker, Rafting/kayaking/flatwater reaches, Rec_Boatin, Riparian/Wetlands, Significant Riparian/Wetland Communities		12, 13
10825 Endangered Fish Study 2009	Colorado River Windy Gap to Williams Fork	Project	Ongoing	Aquatic_Ec, Bluehead Sucker, Colorado River Cutthroat Trout , CWCB instream flow water rights, Flannelmouth Sucker, Geomorph_F, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Rec_Boatin, RipWet_Eco, Roundtail Chub, Significant Riparian/Wetland Communities, Water_Qual		9, 16
CDOW Fish Populations Study 2010 (Ewert)	Colorado River Windy Gap to Williams Fork	Information	Ongoing	Aquatic_Ec, Bluehead Sucker, Colorado River Cutthroat Trout , CWCB instream flow water rights, Flannelmouth Sucker, Geomorph_F, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Rec_Boatin, RipWet_Eco, Roundtail Chub, Significant Riparian/Wetland Communities, Water_Qual		9, 16
Listed 303d - temperature	Colorado River Windy Gap to Williams Fork	Project	Ongoing	Aquatic_Ec, Bluehead Sucker, Colorado River Cutthroat Trout , CWCB instream flow water rights, Flannelmouth Sucker, Geomorph_F, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Rec_Boatin, RipWet_Eco, Roundtail Chub, Significant Riparian/Wetland Communities, Water_Qual		9, 16

Table 3-4 Colorado Basin Nonconsumptive Identified Projects and Processes Summary (continued)

Project Name	Project Location	Project Type	Project Status	Basin Roundtable Attributes Identified	Project Protections	Reach ID
Moffat Firming EIS	Colorado River Windy Gap to Williams Fork	Information	Ongoing	Aquatic_Ec, Bluehead Sucker, Colorado River Cutthroat Trout , CWCB instream flow water rights, Flannelmouth Sucker, Geomorph_F, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Rec_Boatin, RipWet_Eco, Roundtail Chub, Significant Riparian/Wetland Communities, Water_Qual		9, 16
Nehring Macro-Invertebrates Study 2010	Colorado River Windy Gap to Williams Fork	Information	Ongoing	Aquatic_Ec, Bluehead Sucker, Colorado River Cutthroat Trout , CWCB instream flow water rights, Flannelmouth Sucker, Geomorph_F, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Rec_Boatin, RipWet_Eco, Roundtail Chub, Significant Riparian/Wetland Communities, Water_Qual		9, 16
Windy Gap Firming EIS	Colorado River Windy Gap to Williams Fork	Information	Ongoing	Aquatic_Ec, Bluehead Sucker, Colorado River Cutthroat Trout , CWCB instream flow water rights, Flannelmouth Sucker, Geomorph_F, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Rec_Boatin, RipWet_Eco, Roundtail Chub, Significant Riparian/Wetland Communities, Water_Qual		9, 16
West Divide Project: Evaluation of Potential Water Demands within the Crystal River Watershed	Crystal River	Information	Completed	Aquatic_Ec, CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual		52
Skylark Ranch Fishing Habitat	Colorado River on the Skylark Ranch	Project	Completed	Aquatic_Ec, Bluehead Sucker, CWCB instream flow water rights, Flannelmouth Sucker, Geomorph_F, Gold Metal Trout Streams, RipWet_Eco, Roundtail Chub, Significant Riparian/Wetland Communities, Water_Qual	Flatwater Boating -D, Other Fishing Streams and Lakes-D	10
Redstone Placita Riparian Restoration Project	Crystal River near Redstone	Project	Completed	Aquatic_Ec, CWCB instream flow water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual	Audubon Important Bird Areas-I, Bluehead Sucker-D, Boreal Toad -D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker -D, Flatwater Boating -D, Rare Plants-I, Roundtail Chub-D, Significant Plant Communities-I	52
Upper Colorado Endangered Fish Program - 10825 Water Supply	Colorado River Near the mouth of the Gunnison River	Flow Protection	Planned	Aquatic_Ec, Audubon important bird areas, Bluehead Sucker, Bonytail Chub, Colorado Pikeminnow, CWCB instream flow water rights, Federally Listed Critical Habitat, Flannelmouth Sucker, Humpback Chub, Rafting/kayaking/flatwater reaches, Razorback Sucker, Riparian/Wetlands, Roundtail Chub, Water_Qual	Colorado Pikeminnow -D, Humpback Chub-D, Razorback Sucker-D	14, 65
Dillon Reservoir Denver Water Minimum Releases	Dillon Reservoir	Flow Protection	Completed	Aquatic_Ec, Audubon important bird areas, Bluehead Sucker, Bonytail Chub, Colorado Pikeminnow, CWCB instream flow water rights, Federally Listed Critical Habitat, Flannelmouth Sucker, Humpback Chub, Rafting/kayaking/flatwater reaches, Razorback Sucker, Riparian/Wetlands, Roundtail Chub, Water_Qual	Bluehead Sucker-D, Boreal Toad -D, Colorado River Cutthroat Trout -D, CWCB Instream Flow Water Rights-D, Flannelmouth Sucker -D, Flatwater Boating -D, Other Fishing Streams and Lakes-D, Rafting / Kayaking / Flatwater Reaches-D, Recreational In-Channel Diversion Structures-D, River Otter-D, Roundtail Chub-D	14, 65
Eagle River Restoration Phase II	Eagle River	Project	Completed	Aquatic_Ec, CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, Rec_Boatin, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual	Colorado River Cutthroat Trout -D, Flatwater Boating -D	19
Edwards - Eagle River - Restoration Project	Eagle River	Project	Phase I complete	Aquatic_Ec, Bluehead Sucker, CWCB instream flow water rights, Flannelmouth Sucker, Rafting/kayaking/flatwater reaches, Rec_Boatin, Riparian/Wetlands, RipWet_Eco	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Lake Fishing-D, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, River and stream fishing-D, Roundtail Chub-D, Significant Fishing Waters-D, Stream Fishing-D, Trout Streams-D	23
Edwards - Eagle River - Restoration Project	Eagle River	Project	Phase II Ongoing	Aquatic_Ec, Bluehead Sucker, Rafting/kayaking/flatwater reaches, Rec_Boatin, Riparian/Wetlands, RipWet_Eco	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Lake Fishing-D, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, River and stream fishing-D, Roundtail Chub-D, Significant Fishing Waters-D, Stream Fishing-D, Trout Streams-D	23
Eagle River Watershed Retrospective Assessment	Eagle River Basin	Information	Completed	Aquatic_Ec, Bluehead Sucker, Boreal Toad, Colorado River Cutthroat Trout , CWCB instream flow water rights, CWCB natural lake level water rights, Flannelmouth Sucker, Geomorph_F, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Rec_Boatin, recreational in-channel diversion structures, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual		19, 22, 23, 24, 25, 26, 27, 28, 30, 32, 33, 34, 65
Planned updated Eagle River watershed plan	Eagle River in Eagle County	Information	Planned	Aquatic_Ec, Bluehead Sucker, CWCB instream flow water rights, CWCB natural lake level water rights, Flannelmouth Sucker, Geomorph_F, Rafting/kayaking/flatwater reaches, Rec_Boatin, recreational in-channel diversion structures, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual		19, 22, 23, 24, 28

Table 3-4 Colorado Basin Nonconsumptive Identified Projects and Processes Summary (continued)

Project Name	Project Location	Project Type	Project Status	Basin Roundtable Attributes Identified	Project Protections	Reach ID
Wild and Scenic eligibility and alternatives process	Eagle River in Eagle County	Flow Protection	Ongoing	Aquatic_Ec, Bluehead Sucker, CWCB instream flow water rights, CWCB natural lake level water rights, Flannelmouth Sucker, Geomorph_F, Rafting/kayaking/flatwater reaches, Rec_Boatin, recreational in-channel diversion structures, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual		19, 22, 23, 24, 28
Vail Ski Area Watershed Improvements	Eagle River Watershed	Water Quality Protection	Completed	Aquatic_Ec, Boreal Toad, CWCB instream flow water rights, CWCB natural lake level water rights, Rafting/kayaking/flatwater reaches, Rec_Boatin, Significant Riparian/Wetland Communities	Bluehead Sucker-I, Bonytail Chub-I, Boreal Toad -I, Colorado Pikeminnow -I, Colorado River Cutthroat Trout -I, CWCB Instream Flow Water Rights-I, CWCB Natural Lake Level Water Rights-I, Federally Listed Critical Habitat-I, Flannelmouth Sucker -I, Flatwater Boating -I, Humpback Chub-I, Razorback Sucker-I, Roundtail Chub-I	26
Proposed Hidden Gems Wilderness area and designation	Crystal River - tributary streams and some reaches	Flow protection	Proposed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, Geomorph_F, RipWet_Eco, Significant Riparian/Wetland Communities		53, 65
Windy Gap Project docs/data	Colorado River -- Windy Gap Reservoir to Kremmling	Information	Completed	Aquatic_Ec, Bluehead Sucker, Colorado River Cutthroat Trout , CWCB instream flow water rights, Flannelmouth Sucker, Geomorph_F, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Rec_Boatin, RipWet_Eco, Roundtail Chub, Significant Riparian/Wetland Communities, Water_Qual		9, 10, 16
St Louis Creek	5-90CW317A	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, Geomorph_F, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	15
CDOW Fish surveys over several years	Colorado River -- Windy Gap Reservoir to Kremmling	Information	Completed	Aquatic_Ec, Bluehead Sucker, Colorado River Cutthroat Trout , CWCB instream flow water rights, Flannelmouth Sucker, Geomorph_F, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Rec_Boatin, RipWet_Eco, Roundtail Chub, Significant Riparian/Wetland Communities, Water_Qual		9, 10, 16
Didymo (algae) Study (ASLO CU?)	Colorado River -- Windy Gap Reservoir to Kremmling	Information	Completed	Aquatic_Ec, Bluehead Sucker, Colorado River Cutthroat Trout , CWCB instream flow water rights, Flannelmouth Sucker, Geomorph_F, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Rec_Boatin, RipWet_Eco, Roundtail Chub, Significant Riparian/Wetland Communities, Water_Qual		9, 10, 16
FWS 1951 studies	Colorado River -- Windy Gap Reservoir to Kremmling	Information	Completed	Aquatic_Ec, Bluehead Sucker, Colorado River Cutthroat Trout , CWCB instream flow water rights, Flannelmouth Sucker, Geomorph_F, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Rec_Boatin, RipWet_Eco, Roundtail Chub, Significant Riparian/Wetland Communities, Water_Qual		9, 10, 16
Nehring -- Whirling disease study	Colorado River -- Windy Gap Reservoir to Kremmling	Information	Completed	Aquatic_Ec, Bluehead Sucker, Colorado River Cutthroat Trout , CWCB instream flow water rights, Flannelmouth Sucker, Geomorph_F, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Rec_Boatin, RipWet_Eco, Roundtail Chub, Significant Riparian/Wetland Communities, Water_Qual		9, 10, 16
Upper Colorado Wild & Scenic Stakeholder Group alternative proposal	Colorado River -- Windy Gap Reservoir to Kremmling	Information	Planned	Aquatic_Ec, Bluehead Sucker, Colorado River Cutthroat Trout , CWCB instream flow water rights, Flannelmouth Sucker, Geomorph_F, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Rec_Boatin, RipWet_Eco, Roundtail Chub, Significant Riparian/Wetland Communities, Water_Qual		6, 9, 16
Visitor Preference Survey 2007	Colorado River -- Windy Gap Reservoir to Kremmling	Information	Completed	Aquatic_Ec, Bluehead Sucker, Colorado River Cutthroat Trout , CWCB instream flow water rights, Flannelmouth Sucker, Geomorph_F, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Rec_Boatin, RipWet_Eco, Roundtail Chub, Significant Riparian/Wetland Communities, Water_Qual		6, 9, 16
W&SR Eligibility Report	Colorado River -- Windy Gap Reservoir to Kremmling	Information	Ongoing	Aquatic_Ec, Bluehead Sucker, Colorado River Cutthroat Trout , CWCB instream flow water rights, Flannelmouth Sucker, Geomorph_F, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Rec_Boatin, RipWet_Eco, Roundtail Chub, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Boreal Toad -D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker -D, Flatwater Boating -D, Other Fishing Streams and Lakes-D, Rafting / Kayaking / Flatwater Reaches-D, Rare Plants-I, Roundtail Chub-D, Significant Plant Communities-I	6, 9, 16
NCA Designation for McInnis Canyons	Colorado River through McInnis Canyons	Flow Protection	Completed	Aquatic_Ec, Bluehead Sucker, Bonytail Chub, Colorado Pikeminnow, Federally Listed Critical Habitat, Flannelmouth Sucker, Humpback Chub, Rafting/kayaking/flatwater reaches, Razorback Sucker, Riparian/Wetlands, Roundtail Chub, Significant Riparian/Wetland Communities	Bluehead Sucker-I, Bonytail Chub-I, Colorado Pikeminnow -I, Colorado River Cutthroat Trout -I, Federally Listed Critical Habitat-I, Flannelmouth Sucker -I, Humpback Chub-I, Rafting / Kayaking / Flatwater Reaches-I, Rare Plants-D, Razorback Sucker-I, Roundtail Chub-I, Significant Plant Communities-D	65

Table 3-4 Colorado Basin Nonconsumptive Identified Projects and Processes Summary (continued)

Project Name	Project Location	Project Type	Project Status	Basin Roundtable Attributes Identified	Project Protections	Reach ID
Wild and Scenic Eligibility	Colorado River -- Windy Gap Reservoir to Kremmling	Project	Ongoing	Aquatic_Ec, Bluehead Sucker, Colorado River Cutthroat Trout , CWCB instream flow water rights, Flannelmouth Sucker, Geomorph_F, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Rec_Boatin, RipWet_Eco, Roundtail Chub, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Boreal Toad -D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker -D, Flatwater Boating -D, Other Fishing Streams and Lakes-D, Rafting / Kayaking / Flatwater Reaches-D, Rare Plants-I, Roundtail Chub-D, Significant Plant Communities-I	9, 10, 16
Wolcott feasibility process	Colorado River - Piney to Eagle River	Information	Ongoing	Aquatic_Ec, Bluehead Sucker, CWCB instream flow water rights, Flannelmouth Sucker, Rafting/kayaking/flatwater reaches, Rec_Boatin, Riparian/Wetlands, Significant Riparian/Wetland Communities		12, 13
Con Richards Project for Fishing	Colorado River below Williams Fork Confluence	Project	Completed	Aquatic_Ec, Bluehead Sucker, CWCB instream flow water rights, Flannelmouth Sucker, Geomorph_F, Gold Metal Trout Streams, RipWet_Eco, Roundtail Chub, Significant Riparian/Wetland Communities, Water_Qual	Flatwater Boating -D, Other Fishing Streams and Lakes-D	10
BLM Resource Management Plan Revision	Colorado River Confluence with the Blue River to State Bridge	Information	Ongoing	Aquatic_Ec, Bluehead Sucker, Flannelmouth Sucker, Rafting/kayaking/flatwater reaches, Rec_Boatin, Significant Riparian/Wetland Communities		11
Grand County Stream Management Plan	Colorado River Confluence with the Blue River to State Bridge	Information	Ongoing	Aquatic_Ec, Bluehead Sucker, Flannelmouth Sucker, Rafting/kayaking/flatwater reaches, Rec_Boatin, Significant Riparian/Wetland Communities		11
Upper Colorado Wild & Scenic Stakeholder Group alternative proposal	Colorado River Confluence with the Blue River to State Bridge	Information	Planned	Aquatic_Ec, Bluehead Sucker, Flannelmouth Sucker, Rafting/kayaking/flatwater reaches, Rec_Boatin, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Boreal Toad -D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker -D, Flatwater Boating -D, Other Fishing Streams and Lakes-D, Rafting / Kayaking / Flatwater Reaches-D, Rare Plants-I, Roundtail Chub-D, Significant Plant Communities-I	11
W&SR suitability determination with RMP decision	Colorado River Confluence with the Blue River to State Bridge	Information	Planned	Aquatic_Ec, Bluehead Sucker, Flannelmouth Sucker, Rafting/kayaking/flatwater reaches, Rec_Boatin, Significant Riparian/Wetland Communities		11
American Whitewater user surveys	Colorado River from confluence with Blue River to No Name Creek in Glenwood Canyon	Information	Ongoing	Aquatic_Ec, Audubon important bird areas, Bluehead Sucker, CWCB instream flow water rights, CWCB natural lake level water rights, Flannelmouth Sucker, Rafting/kayaking/flatwater reaches, Rec_Boatin, Riparian/Wetlands, Significant Riparian/Wetland Communities		11, 12, 13
American Whitewater's Recreational Flow Assessment	Colorado River from confluence with Blue River to No Name Creek in Glenwood Canyon	Information	Completed	Aquatic_Ec, Audubon important bird areas, Bluehead Sucker, CWCB instream flow water rights, CWCB natural lake level water rights, Flannelmouth Sucker, Rafting/kayaking/flatwater reaches, Rec_Boatin, Riparian/Wetlands, Significant Riparian/Wetland Communities		11, 12, 13
CDOW fish shocking surveys	Colorado River from confluence with Blue River to No Name Creek in Glenwood Canyon	Information	Ongoing	Aquatic_Ec, Audubon important bird areas, Bluehead Sucker, CWCB instream flow water rights, CWCB natural lake level water rights, Flannelmouth Sucker, Rafting/kayaking/flatwater reaches, Rec_Boatin, Riparian/Wetlands, Significant Riparian/Wetland Communities		11, 12, 13
W&SR suitability determination with RMP decision	Colorado River -- Windy Gap Reservoir to Kremmling	Information	Planned	Aquatic_Ec, Bluehead Sucker, Colorado River Cutthroat Trout , CWCB instream flow water rights, Flannelmouth Sucker, Geomorph_F, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Rec_Boatin, RipWet_Eco, Roundtail Chub, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Boreal Toad -D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker -D, Flatwater Boating -D, Other Fishing Streams and Lakes-D, Rafting / Kayaking / Flatwater Reaches-D, Rare Plants-I, Roundtail Chub-D, Significant Plant Communities-I	6, 9, 16
Develop a channel by-pass around Windy Gap	0	Project	Planned	Aquatic_Ec, Bluehead Sucker, Colorado River Cutthroat Trout , CWCB instream flow water rights, Flannelmouth Sucker, Geomorph_F, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Rec_Boatin, RipWet_Eco, Roundtail Chub, Significant Riparian/Wetland Communities, Water_Qual	Audubon Important Bird Areas-I, Bluehead Sucker-D, Boreal Toad -D, Colorado River Cutthroat Trout -D, CWCB Instream Flow Water Rights-D, Flannelmouth Sucker -D, Flatwater Boating -D, Rafting / Kayaking / Flatwater Reaches-D, Rare Plants-I, Roundtail Chub-D, Significant Plant Communities-I	9, 16
Troublesome Creek, Lower		Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65

Table 3-4 Colorado Basin Nonconsumptive Identified Projects and Processes Summary (continued)

Project Name	Project Location	Project Type	Project Status	Basin Roundtable Attributes Identified	Project Protections	Reach ID
Troublesome Creek, Upper		Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Miscellaneous bypass flows below Moffat collection system	"Fraser River - various tributaries - Meadow, Cabin and Hamilton Creeks"	Flow Protection	Ongoing	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, CWCB natural lake level water rights, Riparian/Wetlands, Significant Riparian/Wetland Communities	Colorado River Cutthroat Trout -D, CWCB Instream Flow Water Rights-D, CWCB Natural Lake Level Water Rights-D, Rare Plants-I, Significant Plant Communities-I	65
10825	0	Flow Protection	0	Aquatic_Ec, CWCB instream flow water rights, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow -D, Flannelmouth Sucker -D, Humpback Chub-D, Razorback Sucker-D, Roundtail Chub-D	6
Aquatic Habitat (PHABSM)	0	Information	Planned	Aquatic_Ec, Bluehead Sucker, Colorado River Cutthroat Trout , CWCB instream flow water rights, Flannelmouth Sucker, Geomorph_F, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Rec_Boatin, RipWet_Eco, Roundtail Chub, Significant Riparian/Wetland Communities, Water_Qual		9, 16
Bar construction to narrow low flow	0	Project	Planned	Aquatic_Ec, Bluehead Sucker, Colorado River Cutthroat Trout , CWCB instream flow water rights, Flannelmouth Sucker, Geomorph_F, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Rec_Boatin, RipWet_Eco, Roundtail Chub, Significant Riparian/Wetland Communities, Water_Qual	Flatwater Boating -D, Other Fishing Streams and Lakes-D	9, 16
BLM Resource Management Plan revision	0	Information	Ongoing	Aquatic_Ec, Bluehead Sucker, Flannelmouth Sucker, Rafting/kayaking/flatwater reaches, Rec_Boatin, Significant Riparian/Wetland Communities		11
Leon Creek	5-85CW655	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	60
Middle Thompson Creek	5-75W2774	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, Geomorph_F, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	53
Blue River		Donated	Completed	Aquatic_Ec, Audubon important bird areas, Bluehead Sucker, CWCB instream flow water rights, CWCB natural lake level water rights, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Rec_Boatin, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	4, 65
Blue River		Donated	Completed	Aquatic_Ec, Bluehead Sucker, CWCB instream flow water rights, CWCB natural lake level water rights, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Buzzard Cr		Appropriated	Completed	Aquatic_Ec, Bluehead Sucker, Boreal Toad, Colorado River Cutthroat Trout , CWCB instream flow water rights, Riparian/Wetlands, RipWet_Eco	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	60

Table 3-4 Colorado Basin Nonconsumptive Identified Projects and Processes Summary (continued)

Project Name	Project Location	Project Type	Project Status	Basin Roundtable Attributes Identified	Project Protections	Reach ID
CDPHE - listing for temp 303d		Information	Ongoing	Aquatic_Ec, Boreal Toad, Colorado River Cutthroat Trout , CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, Rec_Boatin, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual		15, 16, 65
Hat Creek		Donated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, CWCB natural lake level water rights, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Snowmass Creek		Donated	Completed	Aquatic_Ec, CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	46
Field work for ISF	0	Information	Completed	Aquatic_Ec, Audubon important bird areas, Bluehead Sucker, CWCB instream flow water rights, CWCB natural lake level water rights, Flannelmouth Sucker, Rafting/kayaking/flatwater reaches, Rec_Boatin, Riparian/Wetlands, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Boreal Toad -D, Colorado River Cutthroat Trout -D, CWCB Instream Flow Water Rights-D, Flannelmouth Sucker -D, Flatwater Boating -D, Other Fishing Streams and Lakes-D, Roundtail Chub-D	11, 12, 13
BLM Visitor Preference Survey	0	Information	Ongoing	Aquatic_Ec, Bluehead Sucker, Flannelmouth Sucker, Rafting/kayaking/flatwater reaches, Rec_Boatin, Significant Riparian/Wetland Communities		11
Edwards - Eagle River - Restoration Project		Project		Aquatic_Ec, Bluehead Sucker, CWCB instream flow water rights, Flannelmouth Sucker, Rafting/kayaking/flatwater reaches, Rec_Boatin, Riparian/Wetlands, RipWet_Eco	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Lake Fishing-D, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, River and stream fishing-D, Roundtail Chub-D, Significant Fishing Waters-D, Stream Fishing-D, Trout Streams-D	23
SWSI Eagle Mine Superfund Project	0	Project	Ongoing	Aquatic_Ec, CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, Rec_Boatin, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-I, Bonytail Chub-I, Boreal Toad -I, Colorado Pikeminnow -I, Colorado River Cutthroat Trout -I, CWCB Instream Flow Water Rights-I, CWCB Natural Lake Level Water Rights-I, Federally Listed Critical Habitat-I, Flannelmouth Sucker -I, Flatwater Boating -I, Humpback Chub-I, Razorback Sucker-I, Roundtail Chub-I	19
Fraser River Enhancement Project	0	Project	0	Aquatic_Ec, Boreal Toad, CWCB instream flow water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, Riparian/Wetlands, Significant Riparian/Wetland Communities, Water_Qual		15
Grand County Water Information Network	0	Information	Ongoing	Aquatic_Ec, Bluehead Sucker, Boreal Toad, Colorado River Cutthroat Trout , CWCB instream flow water rights, CWCB natural lake level water rights, Flannelmouth Sucker, Geomorph_F, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Rec_Boatin, Riparian/Wetlands, RipWet_Eco, Roundtail Chub, Significant Riparian/Wetland Communities, Water_Qual		5, 6, 9, 10, 15, 16, 17, 65
PNABSM	0	Information	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, Riparian/Wetlands, Significant Riparian/Wetland Communities, Water_Qual		15, 65
Pool and river habitat for winter flows	0	Project	Planned	Aquatic_Ec, Bluehead Sucker, Colorado River Cutthroat Trout , CWCB instream flow water rights, Flannelmouth Sucker, Geomorph_F, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Rec_Boatin, RipWet_Eco, Roundtail Chub, Significant Riparian/Wetland Communities, Water_Qual	Flatwater Boating -D, Other Fishing Streams and Lakes-D	9, 16
Ruedi Reservoir flow agreement	0	Flow Protection	Completed	Aquatic_Ec, CWCB instream flow water rights, Geomorph_F, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Rec_Boatin, RipWet_Eco	CWCB Instream Flow Water Rights-D, Flatwater Boating -D, Rafting / Kayaking / Flatwater Reaches-D	55
Shares purchased for NCNs	0	Project	Completed	Aquatic_Ec, Boreal Toad, Colorado River Cutthroat Trout , CWCB instream flow water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, Rec_Boatin, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual		15, 16

Table 3-4 Colorado Basin Nonconsumptive Identified Projects and Processes Summary (continued)

Project Name	Project Location	Project Type	Project Status	Basin Roundtable Attributes Identified	Project Protections	Reach ID
Stream restoration	0	Project	Proposed	Aquatic_Ec, Bluehead Sucker, Boreal Toad, CWCB instream flow water rights, CWCB natural lake level water rights, Flannelmouth Sucker, Rafting/kayaking/flatwater reaches, Riparian/Wetlands, Significant Riparian/Wetland Communities	Flatwater Boating -D, Other Fishing Streams and Lakes-D	65
Streamside restoration on lower reach	0	Project	Planned	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, Riparian/Wetlands, Significant Riparian/Wetland Communities, Water_Qual	Flatwater Boating -D, Other Fishing Streams and Lakes-D	15, 65
SWSI Cutthroat Restoration	0	Flow Protection	Ongoing	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, RipWet_Eco	Colorado River Cutthroat Trout -D	34
SWSI Gypsum State Wildlife Area Instream Habitat Improvement	0	Project/Flow Protection	Ongoing	Aquatic_Ec, CWCB instream flow water rights, Rec_Boatin, RipWet_Eco	Other Fishing Streams and Lakes-D	24
SWSI Shoshone Sediment Release	0	Project	Ongoing	Audubon important bird areas, Bluehead Sucker, CWCB natural lake level water rights, Flannelmouth Sucker, Rafting/kayaking/flatwater reaches, Riparian/Wetlands, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow -D, Federally Listed Critical Habitat-D, Flannelmouth Sucker -D, Humpback Chub-D, Razorback Sucker-D, Roundtail Chub-D	13
SWSI Summer Base-flow project	0	Project	Planned	Aquatic_Ec, Bluehead Sucker, CWCB instream flow water rights, CWCB natural lake level water rights, Flannelmouth Sucker, Rafting/kayaking/flatwater reaches, Rec_Boatin, recreational in-channel diversion structures, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities		23, 24
Wild and Scenic Eligibility Report	0	Information	Completed	Aquatic_Ec, Bluehead Sucker, CWCB instream flow water rights, Geomorph_F		9
Winter Park Rec. Ass'n snowmaking pumpback and storage	0	Flow Protection	Planned	Aquatic_Ec, Boreal Toad, Colorado River Cutthroat Trout , CWCB instream flow water rights, Riparian/Wetlands, Significant Riparian/Wetland Communities	Boreal Toad -D, Colorado River Cutthroat Trout -D, Rare Plants-I, Significant Plant Communities-I	65
Winter Park Water and Sanitation Alt. source diversion	0	Flow Protection	Planned	Aquatic_Ec, Boreal Toad, Colorado River Cutthroat Trout , CWCB instream flow water rights, Riparian/Wetlands, Significant Riparian/Wetland Communities	Boreal Toad -D, Colorado River Cutthroat Trout -D, Rare Plants-I, Significant Plant Communities-I	65
Winter Park Water and Sanitation Pumpback	0	Flow Protection	Planned	Aquatic_Ec, Boreal Toad, Colorado River Cutthroat Trout , CWCB instream flow water rights, Riparian/Wetlands, Significant Riparian/Wetland Communities	Boreal Toad -D, Colorado River Cutthroat Trout -D, Rare Plants-I, Significant Plant Communities-I	65
SWSI Aquatic Wildlife Management Plan	0	Project	Planned	Aquatic_Ec, Audubon important bird areas, Bluehead Sucker, Bonytail Chub, Colorado Pikeminnow, CWCB instream flow water rights, Federally Listed Critical Habitat, Flannelmouth Sucker, Humpback Chub, Rafting/kayaking/flatwater reaches, Razorback Sucker, Riparian/Wetlands, Roundtail Chub, Significant Riparian/Wetland Communities, Water_Qual		14, 65
Hunter Creek	5-75W2652	Appropriated	Completed	Aquatic_Ec, Audubon important bird areas, Colorado River Cutthroat Trout , CWCB instream flow water rights, Geomorph_F, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	42
South Fork Fryingpan River	5-73W1947	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	49
Fryingpan River	5-73W1948	Appropriated	Completed	CWCB instream flow water rights, CWCB natural lake level water rights, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	0

Table 3-4 Colorado Basin Nonconsumptive Identified Projects and Processes Summary (continued)

Project Name	Project Location	Project Type	Project Status	Basin Roundtable Attributes Identified	Project Protections	Reach ID
North Fork Fryingpan River	5-73W1949	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	49
Chapman Gulch	5-73W1950	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	49
North Cunningham Creek	5-73W1951	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	49
Ivanhoe Creek	5-73W1952	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	49
Mormon Creek	5-73W1953	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	49
Fryingpan River	5-73W1945	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, Geomorph_F, Gold Metal Trout Streams, Rafting/kayaking/flatwater reaches, Rec_Boatin, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	55
Middle Cunningham Creek	5-73W1957	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	49
Rabbit Ears Creek	5-08CW100	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Midway Creek	5-75W2653	Appropriated	Completed	Aquatic_Ec, Audubon important bird areas, CWCB instream flow water rights, Geomorph_F, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	42

Table 3-4 Colorado Basin Nonconsumptive Identified Projects and Processes Summary (continued)

Project Name	Project Location	Project Type	Project Status	Basin Roundtable Attributes Identified	Project Protections	Reach ID
Hunter Creek	5-75W2654	Appropriated	Completed	Aquatic_Ec, Audubon important bird areas, CWCB instream flow water rights, Geomorph_F, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	42
Hunter Creek	5-75W2656	Appropriated	Completed	Aquatic_Ec, Audubon important bird areas, CWCB instream flow water rights, Geomorph_F, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	43
Beaver Creek	5-75W2719	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, CWCB natural lake level water rights	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Crystal River	5-75W2721	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	52
Crystal River	5-75W2720	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	52
CDPHE - listing for copper on the M+E		Information	Ongoing	Aquatic_Ec, Boreal Toad, Colorado River Cutthroat Trout , CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, Rafting/kayaking/flatwater reaches, Rec_Boatin, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual		15, 16, 65
Fryingpan River	5-73W1955	Appropriated	Completed	Boreal Toad, CWCB instream flow water rights, CWCB natural lake level water rights, Rafting/kayaking/flatwater reaches, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	0
East Middle Fork Parachute Creek	5-00CW129	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	59
Carter Creek	5-73W1946	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, CWCB natural lake level water rights, Geomorph_F, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	49

Table 3-4 Colorado Basin Nonconsumptive Identified Projects and Processes Summary (continued)

Project Name	Project Location	Project Type	Project Status	Basin Roundtable Attributes Identified	Project Protections	Reach ID
JQS Gulch	5-00CW128	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	59
No Name Creek	5-75W2655	Appropriated	Completed	Aquatic_Ec, Audubon important bird areas, CWCB instream flow water rights, Geomorph_F, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	42
Northwater Creek	5-00CW130	Enlarged	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	59
East Fork Parachute Creek	5-00CW133	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	59
East Fork Parachute Creek	5-00CW134	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	59
East Fork Parachute Creek	5-00CW135	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, Riparian/Wetlands, RipWet_Eco, Significant Riparian/Wetland Communities, Water_Qual	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	59
East Canyon Creek	5-03CW270	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Thompson Creek	5-03CW275	Appropriated	Completed	Aquatic_Ec, CWCB instream flow water rights, Geomorph_F, RipWet_Eco, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	53
Arapaho Creek	5-08CW093	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, CWCB natural lake level water rights, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65

Table 3-4 Colorado Basin Nonconsumptive Identified Projects and Processes Summary (continued)

Project Name	Project Location	Project Type	Project Status	Basin Roundtable Attributes Identified	Project Protections	Reach ID
Battlement Creek	5-08CW098	Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65
Baldy Creek		Appropriated	Completed	Aquatic_Ec, Colorado River Cutthroat Trout , CWCB instream flow water rights, Significant Riparian/Wetland Communities	Bluehead Sucker-D, Bonytail Chub-D, Colorado Pikeminnow-D, Colorado River Cutthroat Trout -D, Flannelmouth Sucker-D, Gold Metal Trout Lakes-D, Gold Metal Trout Streams-D, Humpback Chub-D, Rare Aquatic-dependent plants-I, Razorback Sucker-D, Razorback Sucker, Humpback Chub, Colorado Pikeminnow-D, Riparian/Wetlands-I, Roundtail Chub-D, Significant Fishing Waters-I, Significant Riparian/Wetland Communities-I, Significant Riparian/Wetland Plants-I, Trout Streams-D, Wetlands-I	65

Section 4
Colorado Basin Consumptive Needs Assessment

4.1 Overview of Consumptive Needs Assessment Process

Water in Colorado is managed to meet the needs of Colorado's citizens, agriculture, and environment. Colorado's economy, quality of life, recreational opportunities, and the environment are all dependent on water. The broad diversity of water uses in Colorado is indicative of the many ways in which we are affected by the water that is available to us and our environment, and how we choose to use it. Severe and continuing drought conditions throughout the state in the early 2000s in conjunction with rapid economic growth and concern over interstate compact obligations have brought focus to the constraints on our state's water resources and the challenges associated with meeting multiple objectives and needs.

The objectives of the consumptive needs part of this Colorado Basin Needs Assessment Report is to:

- Update population projections and extend them to 2050
- Update municipal and industrial (M&I) per capita estimates including passive conservation
- Extend the Statewide Water Supply Initiative (SWSI) 1 consumptive water use projections to 2050 for the M&I sector
- Update the self-supplied industrial (SSI) sector forecast to 2050
- Update the current tally of irrigated acres throughout Colorado and forecast irrigated acres in 2050
- Update current agricultural demands and shortages
- Update the consumptive demand forecast to 2050 for the agricultural sector

The analyses summarized in this section use a water forecast horizon of 2050 for a number of reasons. The Colorado Water Conservation Board (CWCB) determined that the forecast horizon for the water demand projections needed to be extended to the year 2050 to better represent the long-term water needs that the state will face.

The following sections provide an overview of the methods used in determining reconnaissance level consumptive water use projections for 2050, and the results of those analyses. Sections 4.2.1 and 4.2.2 describe the methods and results of projecting M&I demands, including population forecasting, estimation of per capita water use, and the application of passive conservation measures. The methods used to estimate SSI demands, and the results thereof, are presented in Section 4.2.3. Section 4.2.4 summarizes the statewide results of the M&I and SSI demand projections. Section 4.3 summarizes the same for agricultural demands. Detailed descriptions of these methodologies and results are available in Appendices H and I of the SWSI 2010 Report.

4.2 M&I and SSI Consumptive Needs

Standard methods were used for projecting future M&I and SSI water demands in the Colorado Basin. The objectives were to develop a reconnaissance level water use forecast that employs consistency in data collection and forecast methodology across the state and maximizes available data. The methods utilized in this approach are for the purpose of general statewide and basinwide planning and are not intended to replace demand projections prepared by local entities for project-specific purposes.

The M&I water demands forecast takes on a "driver multiplied by rate of use" approach. This is a commonly accepted forecast methodology that accounts for changes in water demand resulting from changes in the driver. County and statewide population projections are the most accepted predictor of future growth for the state. Therefore, the driver for the M&I water demands forecast is population and the rate of use is gallons per capita per day, or gpcd.

4.2.1 Future Population Projections

Population projections were estimated using the forecasting process and models utilized by the Colorado State Demographer's Office (SDO). Because of the uncertainty in projecting economic conditions and employment levels in 2050, low, medium, and high scenario population projections were developed. A detailed analysis of the population projections is included in Appendix H of the SWSI 2010 Report.

4.2.1.1 2050 Population Projection Methodology

The first step in developing 2050 population projections was to identify a population forecasting methodology that could meet the needs of the 2050 water demand projections. To be suitable, the water demand projections would need to satisfy the following criteria:

- The forecasting methodology must be valid and widely acceptable, both by users of the results and demographic forecasting practitioners.
- The forecasting approach must be transparent and understandable to the extent possible.
- The projections must be replicable.
- In keeping with state-of-the-art practices employed by the SDO, the projections must be economically based and then linked to demographic factors in an integrated manner.
- The projections must be able to produce population forecasts for each county to the year 2050 under high, medium, and low economic development assumptions.

It was determined that the forecasting process and models utilized by the SDO, in conjunction with its consultant, the Center for Business and Economic Forecasting (CBEF), met all of those criteria. Therefore, the SDO forecasting process was adopted for the 2050 effort.

As of 2010, the SDO/CBEF projections are available through the year 2035. It was determined that the forecasting models, equations, and algorithms could be extended or adjusted as needed from 2035 to 2050. To adjust the models from 2035 to 2050, assumptions regarding national and international driving forces behind Colorado's basic economic sectors were developed.

Basic economic sectors include those activities that bring money and economic stimulus into a geographic area. Employment was projected for each of Colorado's basic economic sectors on the basis of the assumptions for the driving forces behind those basic sectors. With projections of basic employment, industry-specific employment multipliers were applied to arrive at total Colorado jobs.

Because of the uncertainty in projecting economic conditions and employment levels in 2050, low, medium, and high employment scenarios were developed for each key employment sector, leading to low, medium, and high population projections. Each of the scenarios reflects unique assumptions for the economy and for each employment sector. These assumptions are detailed in Appendix H of the SWSI 2010 Report. Additionally, populations for counties that lie within two or more basins were allocated to the respective basins based on estimates from known population centers within each basin.

4.2.1.2 2050 Population Projection Results

Between the years 2008 and 2050, the State of Colorado is projected to grow from approximately 5.1 million people to between 8.6 million and 10 million people. Under low economic development assumptions, state population is projected to grow to about 8.6 million people, or by about 71 percent. Under high economic development assumptions, including a 550,000 barrel per day oil shale industry, the state's population is projected to grow to just over 10 million people, or by 98 percent, as compared to Colorado's 2008 population. On average, statewide population projections from 2008 forward indicate an increase of about 1.4 million people every 15 years.

Table 4-1 shows how population growth will vary across the state during the next 40 years. Based on these projections, the Arkansas, Metro, and South Platte Basins will continue to have the largest population in the state. However, the West Slope will continue to grow at a faster rate than the Front Range of Colorado. **Figure 4-1** shows how population growth will vary throughout the Colorado Basin at the county level. As the most populous river basins in the state, the South Platte and Metro Basins are projected to grow from approximately 3.5 million people in the year 2008 to about 6 million people by the year 2050. This amounts to an increase of about 2.5 million people, or about 73 percent, during that period. About 69 percent of all Colorado residents resided in the South Platte Basin in the year 2008; by the year 2050, that proportion will decrease only slightly to about two-thirds. Consistent with predicted population trends, the South Platte and Metro Basins have the largest employment of all basins, totaling over 2 million jobs in 2007. Over 3.4 million job opportunities are expected by 2050. Regional and national service jobs led employment in 2007 and will remain the largest source of employment in these basins in 2050. Household basic sector employment is anticipated to grow more rapidly than other basic sectors (174 percent increase between 2007 and 2050), and tourism jobs are expected to grow by about 83 percent over the same period.

Table 4-1 Population Projections by River Basin

Basin	2008	2035	Percent Change 2008 to 2035	Percent Average Annual Growth Rate	2050			Percent Change 2008 to 2050	Percent Average Annual Growth Rate
					Low	Medium	High		
Arkansas	948,000	1,451,000	53	1.6	1,581,000	1,688,000	1,841,000	67-94	1.2-1.6
Colorado	**307,000**	**558,000**	**82**	**2.2**	**661,000**	**725,000**	**832,000**	**115-171**	**1.8-2.4**
Gunnison	105,000	184,000	75	2.1	206,000	220,000	240,000	96-129	1.6-2.0
Metro	2,513,000	3,622,000	44	1.4	4,018,000	4,144,000	4,534,000	60-80	1.1-1.4
North Platte	1,500	1,800	20	0.7	2,000	2,200	2,500	33-67	0.7-1.2
Rio Grande	50,000	68,000	36	1.2	74,000	80,000	87,000	48-74	0.9-1.3
South Platte	977,000	1,622,000	66	1.9	1,808,000	1,902,000	2,065,000	85-111	1.5-1.8
Southwest	105,000	185,000	76	2.1	204,000	224,000	249,000	94-137	1.6-2.1
Yampa-White	45,000	81,000	80	2.2	94,000	117,000	153,000	109-240	1.8-3.0
TOTAL	**5,051,500**	**7,772,800**	**54**	**1.6**	**8,648,000**	**9,102,200**	**10,000,000**	**71-98**	**1.3-1.6**

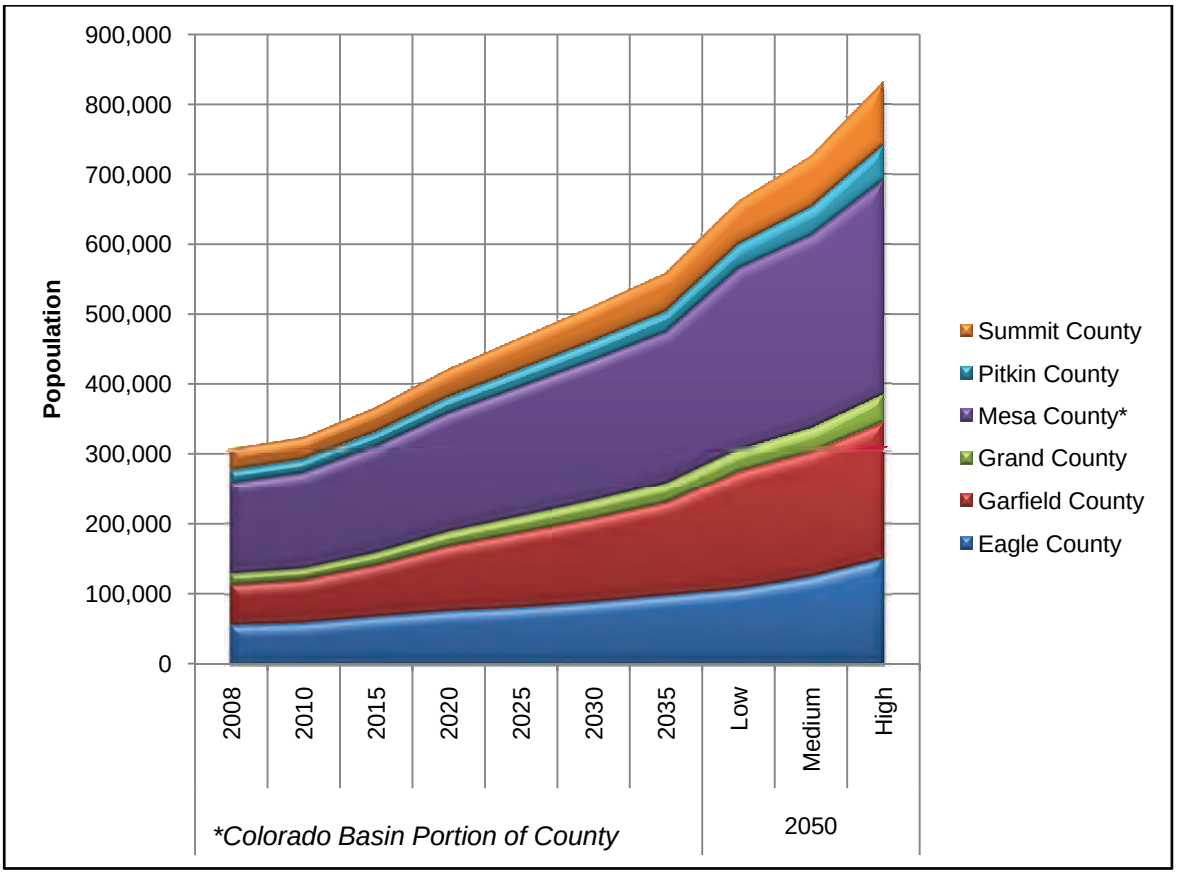

Figure 4-1 Colorado Basin Population Projections through 2050

4.2.2 Future M&I Water Demands

The M&I demand forecast is aimed at capturing the water needs of an increased population. M&I demands are the water uses typical of municipal systems, including residential, commercial, light industrial, nonagricultural related irrigation, nonrevenue water, and firefighting. For the current effort, the M&I demand forecast also captures households across the basin that are self-supplied and thus not connected to a public water supply system. **Table 4-2** contains the definitions of the M&I demand terms used throughout this report.

Table 4-2 Definition of M&I Demand Terms

Demand Terminology	Definition
M&I Demand	All the water uses of typical municipal systems, including residential, commercial, industrial, irrigation, and firefighting
SSI Demand	Large industrial water uses that have their own water supplies or lease raw water from others
M&I Demand and SSI Demand	The sum of M&I and SSI demand

The updated demands presented in this document include both baseline demands (without passive conservation) and baseline demands minus passive conservation. It is important to note that the M&I demand forecasts do not include potential increases in demand due to climate change or potential decreases in demand due to active conservation programs.

4.2.2.1 2050 M&I Water Demands Methodology

The methodology used for the M&I water demands forecast in this update is nearly identical to the methodology employed in SWSI 1. The method is based on a sample of water providers throughout the state as described in this section. The estimated per capita water use rates for each county were multiplied by the projected population of each county to estimate current and future municipal water demand (i.e., the residential, commercial, and industrial water use) of each county.

It is critical to note that the methods utilized in this approach are for the purpose of general basinwide and statewide planning and are not intended to replace demand projections prepared by local entities for project-specific purposes. County and statewide population projections are the most accepted predictor of future growth for the state. Therefore, it was determined the SWSI 1 methodology was most appropriate. The methodology employed is a commonly accepted forecast methodology for statewide water supply planning purposes, but is not appropriate for project-specific purposes or for direct comparisons between basins or counties.

Estimates of Per Capita M&I Water Use

The M&I water demands forecast is developed by multiplying the population projections outlined in Section 4.2.1 by a rate of use. The rate of use is systemwide gpcd. Numerous factors affect per capita water use rates, and through the course of SWSI 1 and the current SWSI 2010, differences in the water use components that are included or excluded from individual entities' per capita estimates clearly affected the resulting values. Per capita water use rates are in large part a function of:

- Number of households
- Persons per household
- Median household income
- Mean maximum temperature
- Total precipitation
- Total employment
- Ratio of irrigated public land areas (e.g., parks) to population in service area
- Mix of residential and commercial water use and types of commercial use
- Level of tourism and/or second homes
- Ratio of employment by sector (e.g., agriculture, commercial, industrial)
- Urban/rural nature of county

Provider water use and service population data were gathered from various sources and organized to create a database. The database built upon existing information from 254 water providers gathered for SWSI 1. Efforts were made to update the data for these providers as part of analyses completed in 2009 and 2010. The CWCB also worked with water providers and basin roundtables across the state through the first part of 2010 to collect additional data. Based on these efforts, updated per capita estimates were collected for 214 water providers covering 87 percent of the population in Colorado. A systemwide gpcd estimate was calculated for each participating local water provider by dividing the total water deliveries by the service area population.

Because 2050 population projects were developed at the county level, the systemwide gpcd values needed to be aggregated from the water provider level to the county level. A weighting process was applied to develop a county average systemwide gpcd based upon the portion of the county population serviced by each water provider. Once the county level M&I demand forecast was developed, basin level M&I water use rates were calculated for the nine basin roundtable areas. Basin M&I demands were aggregated from the county demands based on the portion of the county within the basin. For four counties (Cheyenne, Lake,

Saguache, and San Juan), no provider-level data were obtained. For these counties, the weighted basin average was assigned.

The population estimates developed for this update and the gpcd values determined through data collection are multiplied to estimate county demands. The population estimates represent permanent populations of each county; thus the water use rates are based on total water use divided by the permanent population. The resulting gpcd water use rates incorporate water used by tourists, students, and other transient populations in that the water used by the transient population is indexed to the permanent population along with the water use of the permanent population. The resulting gpcd also incorporates commercial and light industrial water use supplied by the water provider. For statewide planning purposes, this is a consistent approach to account for water use by transient populations, commercial, and light industry. Comparisons of gpcds between counties and basins should not be made directly, since differences in the amount of industry, tourism, and outdoor water use varies significantly between geographic regions.

Passive Water Conservation Savings

The methodology for the M&I water demands projections outlined above develops baseline water demand estimates. In addition, CWCB has updated the passive conservation analysis, and these water savings are subtracted from the baseline estimates. This section provides an overview of passive water conservation savings, which chiefly relate to the water demand reductions associated with the impacts of state and federal policy measures and do not include active conservation measures and programs sponsored by water providers. A detailed description of this analysis is provided in the *SWSI Conservation Levels Analysis Report*.

Several pieces of key federal and state legislation were considered in the development of the passive conservation savings estimates, including the 1992 National Energy Policy Act, the 2002 California Energy Commission Water Efficiency Standards, and the 2007 California Assembly Bill 715.

For this analysis, passive water savings were calculated to occur as a result of retrofitting housing stock and businesses that exist prior to 2016 through the replacement of washing machines, toilets, and dishwashers. Future water demand reductions associated with passive savings were calculated for each year beginning in 1996, which was when benchmark toilet flushing volume data from Denver was available. The calculations used to estimate future demand reductions from passive conservation were developed for minimum and maximum scenarios based on the assumptions related to the retrofit of existing housing and commercial construction with high-efficiency toilets, clothes washers, and dishwashers.

The calculations based on these assumptions were used to estimate a range of future passive water savings in each county for each year starting in 2000 and continuing until 2050. The total range of savings expected from passive conservation through 2050 is 19 to 33 gpcd. The upper range of these savings were applied to the county level baseline estimates described above to assess what the 2050 demands would be on a low, medium, and high basis with passive conservation. As stated in the *SWSI Conservation Levels Analysis Report,* there are three major reasons for applying the high passive conservation savings:

1. Water and energy savings will become increasingly important to water customers as water and fuel costs rise. As water customers seek more efficiency in their homes and businesses, high efficiency fixtures and appliances will become increasingly efficient as technology improves and customers strive to reduce their variable costs related to water and energy.

2. The potential exists to realize substantial permanent water demand reductions in the future if appropriate regulations and ordinances are developed to address water use in existing and new construction.

3. The impact of commercial retrofits (e.g., restaurants, motels, ski area condominiums, centralized laundries, commercial laundries, bars, etc.), is not well captured in the passive savings analyses since information regarding numbers of and ages of individual types of commercial properties were not available.

4.2.2.2 2050 M&I Water Demands Results

Colorado's population is projected to nearly double by the year 2050. Because the major driver for water use is population growth, M&I water usage is also expected to nearly double, even with savings from passive conservation. Statewide municipal water demands are estimated to increase from 975,000 acre-feet per year (AFY) to 1.36 million AFY by 2035 requiring an additional 383,000 AFY of water to meet Colorado's municipal water needs in 2035.

Based on the population projections discussed in Section 4.2.1, total statewide 2050 M&I water demands with passive conservation could range from 1.5 to 1.8 million AFY. By 2050, Colorado will need between 538,000 and 812,000 AFY of additional water to meet M&I demands. Passive conservation savings will result in approximately 154,000 AFY reduction statewide or just over 8 percent decrease in M&I water demands by 2050 for the medium demand scenario.

Table 4-3 on the following page and **Figure 4-2** illustrates the M&I water demand projections with passive conservation savings for each of the counties in the Colorado Basin.

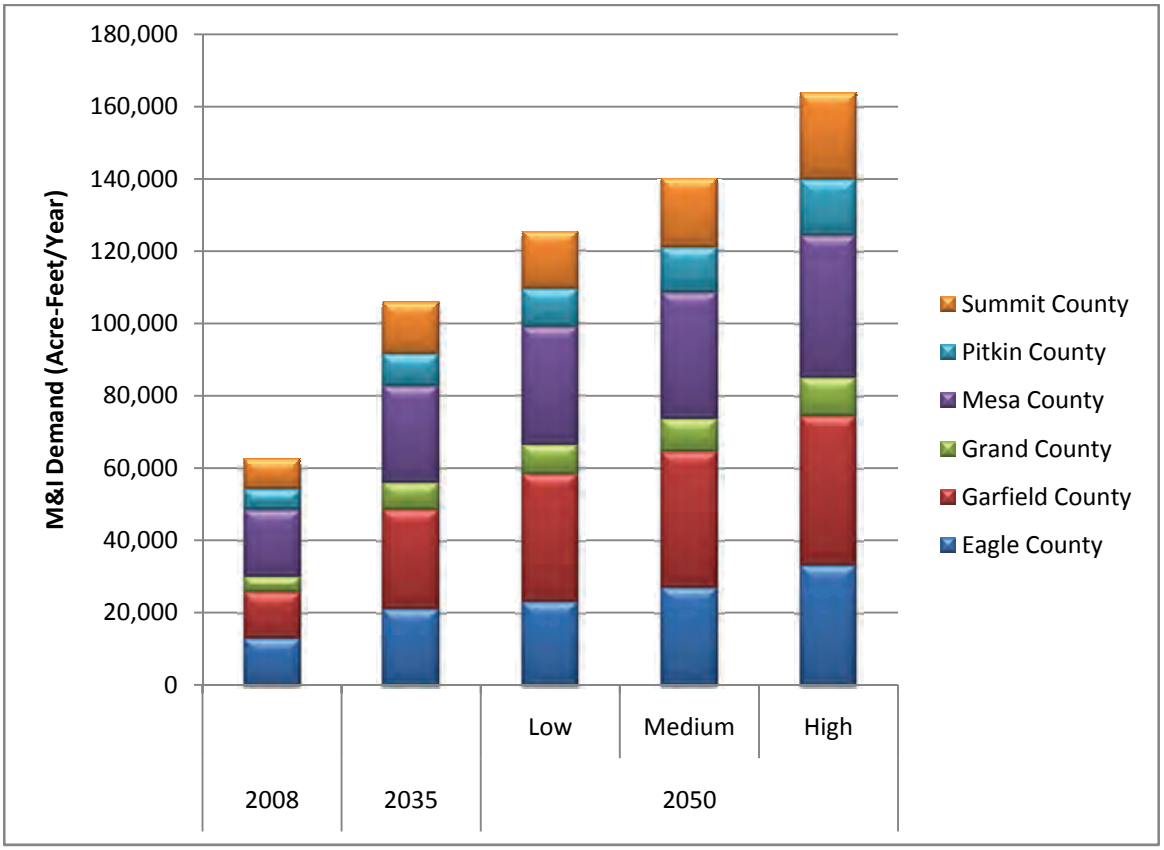

Figure 4-2 Colorado Basin M&I Water Demands

Table 4-3 M&I Forecast by River Basin

County	Water Demand (AF)	Baseline Water Demands (AFY)				Water Demands with Passive Conservation (AFY)			
	2008	2035	2050 Low	2050 Medium	2050 High	2035	2050 Low	2050 Medium	2050 High
Eagle County	13,000	23,000	25,000	29,000	35,000	21,000	23,000	27,000	33,000
Garfield County	13,000	29,000	37,000	39,000	43,000	27,000	35,000	37,000	41,000
Grand County	4,200	7,800	8,500	9,600	11,000	7,400	8,000	9,100	11,000
Mesa County - Colorado Basin Portion	85,000	140,000	170,000	180,000	200,000	120,000	150,000	160,000	180,000
Pitkin County	5,600	9,300	11,000	13,000	16,000	8,800	10,000	12,000	15,000
Summit County	8,300	15,000	17,000	20,000	25,000	14,000	16,000	19,000	24,000
Total	**130,000**	**220,000**	**270,000**	**290,000**	**330,000**	**200,000**	**240,000**	**260,000**	**300,000**

4.2.3 SSI Water Demands

Standard methods were adapted for use in SWSI 1 for estimating future SSI water demands throughout Colorado. SSI water demands include water use by self-supplied and municipal provided large industries. The subsectors that are included in SSI are:

- Large industries, including mining, manufacturing, brewing, and food processing
- Water needed for snowmaking
- Thermoelectric power generation at coal- and natural gas-fired facilities
- Energy development, including the extraction and production of natural gas, coal, uranium, and oil shale

These industries represent economic growth within the state and the availability of water resources is imperative to their growth. Because of the diversity of the SSI subsectors, this section is organized to summarize each subsector separately, including data collection efforts and results. Detailed discussions of data sources, methodologies, and results are provided in Appendix H of the SWSI 2010 Report.

4.2.3.1 Snowmaking

The ski industry in Colorado is the cornerstone of tourism and economic activity for a large region of the state. While the water used by the ski resorts does not have a high consumption rate, it is water removed from the stream system and thus important to estimate. The forecast methodology employed in this update differs from the SWSI 1 forecast methodology. Additional data were identified that proved useful in developing water use demands for snowmaking.

For this effort, several pieces of information were obtained—current snowmaking acres for each ski resort, current amount of water used for snowmaking, and expected future water use for snowmaking. Water use information was not available for all ski resorts. For these resorts, the known water use data were used to estimate current and future snowmaking demand. To stay within the bounds of the known data, water use was held constant for resorts with no known future expansions. Also, for resorts with known expansions, build out was assumed to be 2050. Results of the forecast for the snowmaking industry are shown in **Table 4-4**. At this time, no low, medium, or high growth scenario is considered for 2050.

Table 4-4 Estimated Snowmaking Water Demands (AFY)

County	2008	2050
Eagle	600	600
Garfield	20	20
Grand	350	630
Mesa	50	50
Pitkin	560	560
Summit	1,600	2880
Total		

4.2.3.2 Energy Development

In September of 2008, the Colorado and Yampa-White Basin Roundtables released a *Phase 1 Energy Development Water Needs Assessment Report* that assessed the water needs in northwest Colorado for energy development. The report estimated water demands needed to support the extraction and production of natural gas, coal, uranium, and oil shale through. Since the 2008 report, the Colorado and Yampa-White Basin Roundtables refined water demand estimates for oil shale development through Phase 2 of the Energy Study. This report also includes recent work completed to address water demands for oil shale development.

Energy Development Water Needs: Romance and Reality

Greg Trainor, Co-Chair, Energy Development Water Needs Assessment, Colorado River Basin Roundtable

The Colorado River Basin Roundtable, along with its sister roundtable in the White and Yampa River Basins, identified water for energy development as a significant unanswered question in the State of Colorado's long-term water supply estimates. Like the cliffs that tower above Interstate 70 between Rifle and DeBeque, oil shale is the three trillion barrel "gorilla" perched in the cage, waiting. Will it ever be let out and, if it is, what kind of impact will it have on the region? It's hard to talk about the vast quantities of hydrocarbons trapped in the sedimentary rock of the Piceance Basin without conjuring up romantic notions of these reserves matching the vast resources of the sheiks of Araby. Even more romantic, the thought of final independence from the 20,000,000 barrels of imported oil per day has been the tantalizing hope of local politicians, developers, and speculators for almost a century.

However, the oil shale industry, itself, has done much to separate the romance from the reality of oil shale development. The first phase of the Colorado Basin Roundtable's Energy Development Water Needs Assessment (March 2011) estimated 400,000 acre-feet (AF) of water per year would be needed for a commercial oil shale industry of 1,500,000 barrels per day and these demands could come as early as 2050. The response by industry to early drafts of the Phase 1 study argued : "No. This is not realistic." First, the intense research that is being done on the various retorting technologies and their ancillary infrastructure is still ongoing and will produce no bankable results before the end of this decade. Reclamation of spent shale, product upgrading, product pipelines, wastewater treatment, control of groundwater, utility infrastructure, community development needs, and uses of chemically-produced water has yet to be grappled with, dependent upon decisions of above ground or *in situ* development and production. The cost-to-benefit has to be calculated, not only for construction, but also for operations, maintenance and, eventually, the replacement of infrastructure. Industry did not become the industry without examining the hard, accounting realities of energy (and money) in, energy (and money) out. A study of Atlantic Richfield's 1980 exit from the Colony Oil Shale Venture at Parachute and Exxon's precipitous departure in 1982 from the same project will bear this reality out.

Second are the mind-boggling engineering challenges of designing and, then, building this infrastructure to support commercial shale. Even with vast energy wealth, the time to construct supporting infrastructure for a 1,500,000 barrel/day industry is not a few decades but generations. Think in terms not of 2050 but of 2060 and 2070. Also, is it plausible to think that in 60 years, oil shale as a transportation fuel will be eclipsed by other technologies, such as natural gas, hydrogen-electric, solar batteries, or of technologies not yet dreamed?

The time-to-construct issue is made clearer when seen relative to the electrical demands of *in situ* technologies, like Dutch Shell's electrical heating of a below-ground retort and employing a "freeze wall" to keep groundwater from the retort. To produce 1,500,000 barrels/day of shale oil (still only 13 percent of the country's daily volume of imported oil) would take 12 power plants the size of the Craig station (1,500 megawatts) near Craig, Colorado. Industry says this is not realistic: It took 10 years to design, permit, and build one station at Craig. To think that 12 more would be built more quickly in Northwest Colorado does not pass the straight face test.

The reality is that industry will take the quicker, cheaper resource that is the closest to the oil shale development sites themselves and use that resource for electrical needs. Natural gas. First, for powering gas-fired turbine generators and, gradually, increasing that use as the industry grows along with it. As the oil shale industry grows and the ancillary support infrastructure increases in size and complexity, then power consumption will become a larger factor and would be supplied from the existing electric grids, meaning from sources far outside of the Colorado or White River Basins.

With these realities factored in, a more accurate estimate of shale's water needs come into focus: the reduced water consumption for electrical production from combined-cycle gas turbine generators (66 percent less water demand) and, with the use of chemically-produced water, the 400,000 AFY of water demand dwindles to 120,000 AF. This latter estimate was modeled in Phase II of the Energy Development Water Needs Assessment, which determined that it could be supplied from direct diversions off the White River, via junior decrees supplemented in dry years from a modest, joint use water storage project in the White River Basin.

Although the potential demands for water from shale development look to have been reduced by an examination of the realities of expense and time of commercial shale development, the West Slope basins need to ensure that water for energy development be identified and reserved for what development may occur.

And what of the water demands from conventional oil and natural gas development, coal production, and uranium development? These demands, even in the projected long-term scenarios, range from 18,000 AFY to 32,000 AFY. These are seen, by most, as not breaking the state's water bank.

Direct water demands include the water required for the construction, operation, production, and reclamation needed to support the energy extractions and development processes. For the natural gas sector, Figure 3-2 from the Phase 1 Energy Study Report was used to allocate demands to counties. The analysis completed by the basin roundtables found that for natural gas generation, activity was shifted from Garfield County to Rio Blanco County over the 40-year timeframe. For the coal sector, two mines were assumed in Moffat County and one each in Rio Blanco, Garfield, and Routt Counties. For the uranium sector, all future activity was allocated to Moffat County except for the long-term high scenario, which was allocated half to Moffat County and half to Mesa.

The population projections for 2050 are based on an oil shale industry of zero barrels per day for the low scenario, 150,000 barrels per day for the medium (100,000 *in situ*, 50,000 above-ground), and 550,000 barrels per day for the high scenario (500,000 *in situ*, 50,000 above-ground). The selected medium and high barrels of water required per barrel of oil values were paired with the medium and high production scenarios. While this is not thought to represent the potential long-term or build-out needs of the oil shale industry, this production level was chosen to represent values for 2050, as build-out of the oil shale industry is not expected between now and 2050.

Direct water use estimates and scenarios from the Draft Phase 2 of the Energy Study were used to estimate 2050 direct water needs for oil shale production. The water uses detailed in the Phase 2 study include indirect and direct water needs for construction/preproduction, electrical energy (combined cycle gas turbines used onsite), production, reclamation, spent shale disposal, upgrading, and production work force. For this effort, indirect thermoelectric energy estimates were included in Section 4.2.3.2 as described above and the water needs for the production work force were accounted for in the population projections and M&I water demands sections of this report.

Oil shale estimates were disaggregated to the county level, making the following assumptions for **Table 4 5**, which summarizes energy development at the county level:

- Above-ground development was assumed to be conducted in Garfield County
- Upgrading for above-ground was assumed to occur in Mesa County
- All *in situ* related water requirements, including upgrading, were included in Rio Blanco County's SSI projections

Table 4-5 shows the estimated energy development direct water demands for the Colorado counties where water demands for energy production will be required by 2050. Water demands for energy development have the potential to increase over twelve times 2008 levels by 2050 for the high scenario.

Table 4-5 Estimated Energy Development Direct Water Demands (AFY)

County	2008	2035	2050		
			Low	Med	High
Garfield	2,000	500	200	3,300	6,900
Mesa	300	—	—	1,400	3,800
Moffat	800	1,500	400	1,200	2,300
Rio Blanco	700	4,000	3,000	5,800	37,900
Routt	500	500	500	500	1,600
Total					

Note that indirect water uses or water demands that result from the increase in the region's population due to energy development and production are not included in this SSI water demands forecast update, as they are captured in the M&I demands forecast in Section 4.2.2. Similarly, increases in thermoelectric power

demands caused by energy development were aggregated to the thermoelectric power generation subsector described in the previous section.

4.2.3.3 Colorado Basin SSI Summary

Figure 4-3 displays SSI water demands in the Colorado Basin.

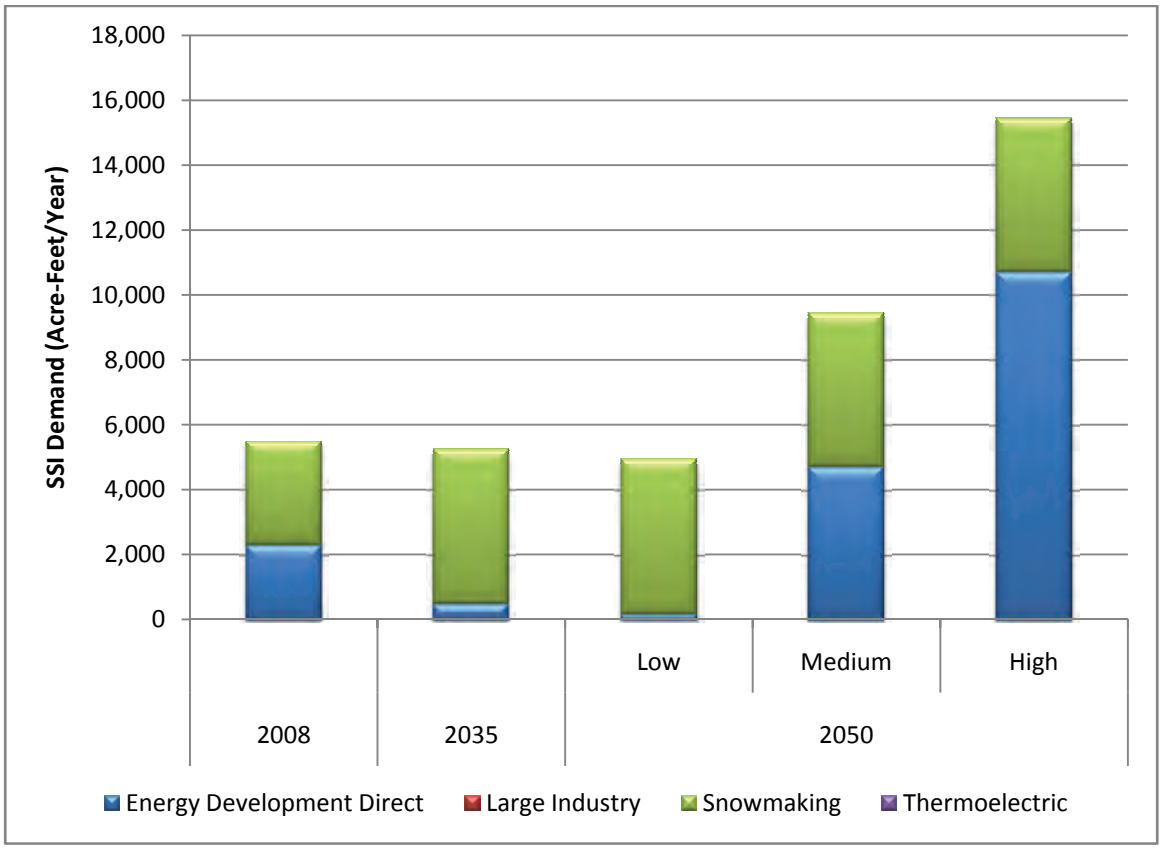

Figure 4-3 Colorado Basin SSI Water Demands

4.2.4 Statewide 2050 M&I and SSI Consumptive Needs Summary

Of the many factors affecting M&I water use, the projected increases in population clearly drive the increases in M&I use from 2000 to 2050. **Table 4-6** and **Figure 4-4** summarize the Colorado Basin's M&I and SSI water use for 2008 and projections including reductions as a result of passive conservation measures for 2035 and the 2050 low, medium, and high scenarios. Total statewide 2035 water demands are projected to be nearly 1.6 million AFY. 2050 water demands are projected to range from approximately 1.75 million AFY to nearly 2.1 million AFY. Figure 4-4 also shows that M&I water demands are estimated to exceed SSI demands for all of the future projections.

Table 4-6 Summary of M&I and SSI Demands for Colorado Basin (AFY)

Basin	Demand Type[1,2]	2008	2035	2050 Low	2050 Med	2050 High
Colorado	M&I	63,000	106,000	125,000	140,000	164,000
	SSI	5,480	5,240	4,940	9,440	15,440
	Total	**68,480**	**111,240**	**129,940**	**149,440**	**179,440**
Statewide	M&I	974,500	1,357,600	1,512,700	1,607,700	1,786,800
	SSI	187,760	235,990	235,890	261,490	322,090
	Total	**1,162,260**	**1,593,590**	**1,748,590**	**1,869,190**	**2,108,890**

1 M&I demands for 2035 and 2050 include passive conservation savings.
2 SSI demands include energy development, large industry, snowmaking, and thermoelectric.

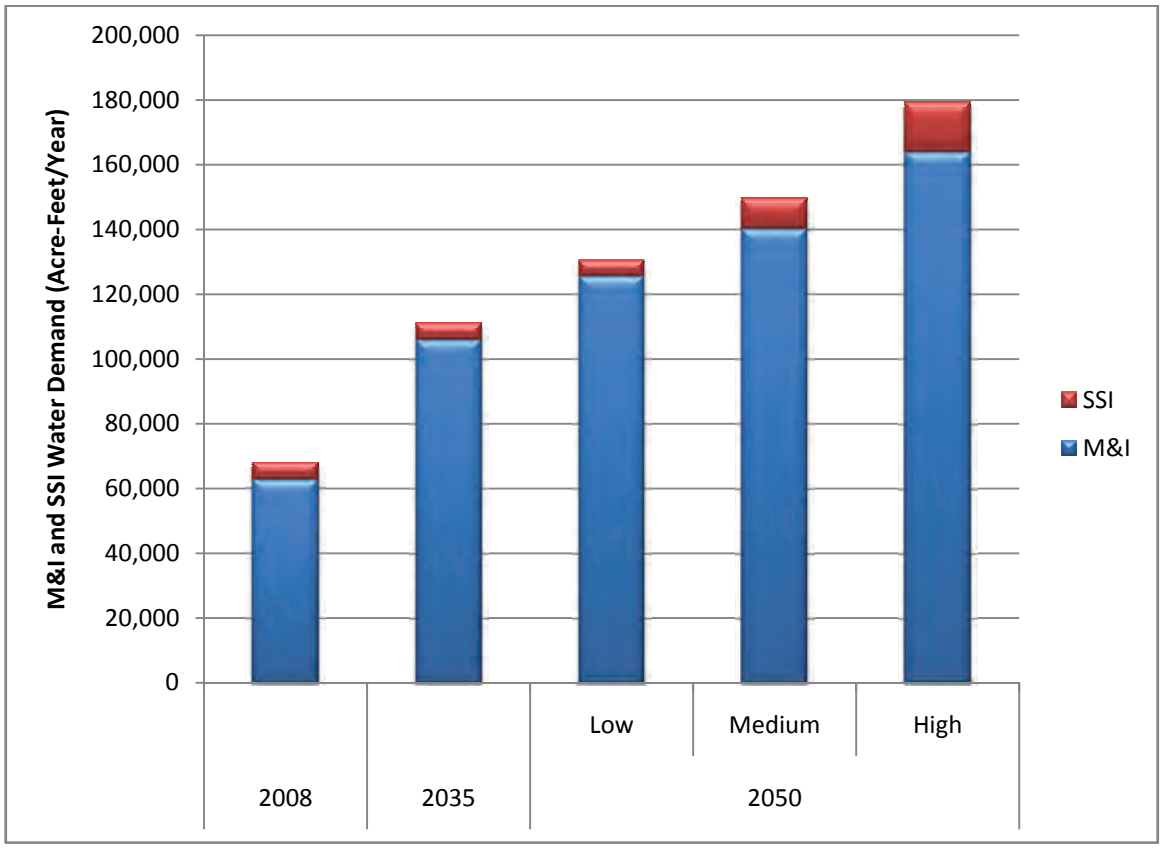

Figure 4-4 Colorado Basin M&I and SSI Water Demands

4.3 Agricultural Consumptive Needs

This section provides information about the methodologies utilized to develop a current tally of irrigated acres and summarizes how 2050 irrigated acres were estimated. In addition, this section provides an overview of existing and 2050 agricultural demands.

4.3.1 Agricultural Demand Methodology

This section describes the methods used to estimate the water needed to support Colorado's agriculture, both currently and in 2050. The estimates include consumptive use (CU) water only—rather than the generally larger volumes of water pumped or diverted—both for the irrigation of crops and for livestock production. CU includes the amount of diverted water that is used by plants through evapotranspiration processes, as well as water that is "lost" to soil evaporation or deep percolation into the groundwater aquifer. A portion of the total diverted amount returns to the stream through surface runoff or lagged groundwater return flows and therefore is not consumptively used.

Colorado's water needs for irrigation are characterized in this analysis by the Irrigation Water Requirement (IWR), Water Supply Limited Consumptive Use (WSL CU), and the difference between these two numbers. CU modeling was executed using a recent decade of climate and water supply information. The objective was not to simulate what occurred over the past 10 years, but to estimate IWR and WSL CU for today's agricultural conditions and a plausible sample of climate and hydrology, exemplified by the recent decade. Future irrigation demand was examined by assuming that historical climate conditions will continue. The analysis assumed that agricultural demand is directly and linearly related to the number of acres irrigated.

In addition to the crop consumption described above, Colorado's agricultural demand includes three other types of CU that are associated with agricultural activity:

- Livestock CU
- Stockpond evaporation
- Losses incidental to delivering irrigation water

The Colorado Decision Support System (CDSS) program has developed processes for quantifying these uses in the context of developing basinwide water budgets, and water resources planning models. For this analysis, CDSS procedures were used to update the SWSI 1 estimates in those basins where a decision support system (DSS) has been implemented; where a DSS does not exist as in the Republican Basin, the CDSS procedures were generally applied if data were available to support the method. The following subsections provide an overview of the methodologies used to estimate current and future irrigated acres and agricultural water demands and the results.

4.3.1.1 Current Irrigated Acres Methodology

The CDSS program has produced irrigated lands mapping and crop CU models in the Colorado Basin. The maps are available as spatial databases, and include crop types, irrigation practices, and association with diversion structures or wells. The structure identifier associated with the irrigated land indicates the location of the headgate that serves the land. Irrigated acres are assigned to the water district where the diversion is located, which may not be where the irrigated acreage lies. Dates of the irrigated lands information varied with the basins including the number of years information was collected.

4.3.1.2 2050 Irrigated Acres Methodology

Using the most current irrigated acres for each basin as defined in the previous section as a baseline, estimates of 2050 irrigated acres were based on the following factors:

- Urbanization of existing irrigated lands
- Agricultural to municipal water transfers
- Water management decisions
- Demographic factors
- Biofuels production
- Climate change
- Farm programs
- Subdivision of agricultural lands and lifestyle farms
- Yield and productivity
- Open space and conservation easements
- Economics of agriculture

The first three factors (urbanization of existing irrigated lands, agricultural to municipal water transfers, and water management decisions) were quantified based on future growth estimates, municipal water demand gaps that will be met by 2050, and interviews with water management agencies across the state. The remaining factors were qualitatively addressed based on information provided by the CWCB and the Colorado Department of Agriculture.

The urbanization of existing irrigated lands was established using 2050 population projections, estimation of future urban area size, and the current irrigated acres as described in the previous section. As discussed above, current irrigated acres in each administrative water district were determined from geographic information system data sources. However, certain types of data (e.g., future population forecasts) were only available on a county basis. Therefore, future losses of irrigated acres were calculated first for each county, and then re-distributed by water district. The methodology is described in detail in Appendix I of the SWSI 2010 Report.

The M&I gap analysis (described in Section 5) was used as the basis for the analysis of irrigated acreage changes associated with agricultural to municipal water transfers. For each of Colorado's major river basins the amount of the M&I gap was summarized in AFY on a low, medium, and high basis. For the purposes of predicting future irrigated acres it was assumed that 70 percent of M&I gap would be met from agricultural to municipal transfers. This percentage is a conservative estimate based on the assumption of 100 percent yield success rate for IPPs (see Section 5). Therefore, it does not take into account the projects or methods that may not be successful in meeting Colorado's future M&I demands; if IPPs are unsuccessful, it is likely that M&I water providers will turn to increased agricultural transfers to meet future demands. The following equation was used to estimate irrigated acres that would be needed for agricultural to municipal transfers to address M&I gaps:

Irrigated Acres Transferred = M&I Gap ÷ Transferrable Consumptive Use x (1 – Safety Factor)

A safety factor of 25 percent was applied to account for the additional amount of irrigated acres that may be needed to provide the transferred water on a firm yield basis.

CWCB interviewed entities within the South Platte, Rio Grande, and Republican River Basins to estimate what changes may occur in irrigated acres due to water management decisions affected by compact compliance or maintain groundwater levels. For the remaining factors (demographic factors, biofuels production, climate change, farm programs, subdivision of agricultural lands and lifestyle farms, yield and productivity, open space and conservation easements, economics of agriculture), CWCB identified trends that are expected to occur within each area over the next 40 years and then developed a qualitative assessment on whether each factor would cause a negative or positive impact on irrigated agriculture by 2050. A detailed description of this qualitative assessment is available in Appendix I of SWSI 2010.

4.3.1.3 Current Agricultural Demand Methodology

Current irrigation demand for water in Colorado can be defined as the average amount of water consumptively used by crops on land currently under irrigation. Typically, water supply is plentiful early in the irrigation year, crop CU is not limited and is equal to the crop IWR. As the irrigation season continues, the available water supply generally decreases, becoming less than the crops' uptake capacity, and CU is limited by supply. In order to quantify crop CU, one must have credible estimates or measurements of the crops' average capacity to use irrigation water, referred to as IWR, as well as the average water supply. The minima of these two values over a series of time increments (typically months) is the WSL CU.

For this analysis, both average IWR and average WSL CU are reported. The latter may be considered to be the current agricultural demand; that is, the water required to sustain current levels of farming. IWR provides perspective on the amount of water that would be used, if it was physically and legally available. It is an upper limit on consumption by current agriculture, and a reminder that Colorado is a dry state with over-appropriated streams.

IWR estimation requires time series of climate information, particularly precipitation and temperature, over the study period; WSL CU estimation requires information about the time-varying water supply available to the crop. For this analysis, a recent 10-year study period was used in each basin, although the exact decade differed from basin to basin depending on available data. The 10-year period allowed for estimation of average conditions with respect to both climate and hydrology. IWR and WSL CU were calculated assuming that the most current estimate of number of irrigated acres, and most recent information on crop types, prevailed during each year of the study period. The results show demand for "today's" agricultural conditions in Colorado, based on a 10-year sample of climate and hydrology.

Where applicable, CDSS methodologies were applied to estimate non-irrigation agricultural consumptive demands (e.g., livestock and stockpond evaporation) as well. Livestock CU is estimated by multiplying the number of cattle, sheep, and hogs located within a basin by their corresponding per capita use. Stockpond evaporation is based on net evaporation rates and stock pond surface area estimates. Details differ among the basins, but in general, the method estimates net reservoir evaporation by subtracting average monthly effective precipitation from the estimated gross monthly free water surface evaporation.

Lastly, incidental losses may include, but are not limited to, vegetative CU that occurs along canals and in tailwater areas. The CDSS program, in preparing Consumptive Uses and Losses (CU&L) Reports for the state, has adopted 10 percent as the factor for computing incidental losses associated with irrigation CU. The value is in the middle of the range of factors (5 percent to 29 percent) used by the Bureau of Reclamation in their parallel CU&L accounting throughout the upper basin states.

4.3.1.4 2050 Agricultural Demand Methodology

Following the techniques described in Section 4.3.1.2, changes in numbers of acres irrigated have been developed for each water district. Since this study intentionally avoids identifying specific water rights or ditches for change of use, there is no basis for calculating the structure-specific CU by which a water district's irrigation demand will change. CU per irrigated acre varies from structure to structure, and depends on available supply, seniority of a water right, and system efficiency. The variability of these factors makes it impossible to predict future losses of irrigated land on a structure-by-structure basis. Consequently, simplifying assumptions were made such that irrigation demand was considered directly proportional to number of acres irrigated. To derive future irrigation demand, current irrigation demand for each water district was scaled by the ratio of future irrigated acreage to current irrigated acreage.

Similarly, non-irrigation demand was estimated as being in proportion to irrigated acres. The relationship between losses incidental to irrigation and number of acres irrigated is proportional. With respect to stockponds and stock watering, it is assumed that predicted changes in irrigated acreage will be accompanied by similar changes in stock raising activities. To derive future non-irrigation demand, current non-irrigation demand was scaled by the ratio of future irrigated acreage to current irrigated acreage.

4.3.2 Agricultural Demand Results

The following sections describe the results of the current and future agricultural demand analyses, which were performed based on the methodologies described above. These analyses included assessments of both irrigated acreage and associated agricultural consumptive water demands. Maps are included to identify the locations of existing irrigated lands across the state, as well as to show the range of irrigated acreage losses anticipated in each basin by 2050.

4.3.2.1 Current Irrigated Acres Results

Information developed for this effort was generated at the water district level. **Figure 4-5** shows the locations of Colorado's water districts and the spatial distribution of current irrigated acres in Colorado based on the methods presented previously. Note that spatial information was not available for the irrigated lands in the Republican River water districts.

Table 4-7 presents the number of irrigated acres in each river basin and the percentage of total that each basin represents. Colorado currently has 3,466,000 acres of irrigated farmland across the state. The South Platte River Basin has the highest percentage of irrigated acres followed by the Rio Grande Basin and the Republican River Basin.

Table 4-7 Current Irrigated Acres by River Basin

Basin	Irrigated Acres	Percentage of Colorado's Irrigated Acres
Arkansas	428,000	12%
Colorado	**268,000**	**8%**
Gunnison	272,000	8%
North Platte	117,000	3%
Republican	550,000	16%
Rio Grande	622,000	18%
South Platte	831,000	24%
Southwest	259,000	7%
Yampa-White	119,000	3%
Statewide Total	**3,466,000**	**100%**

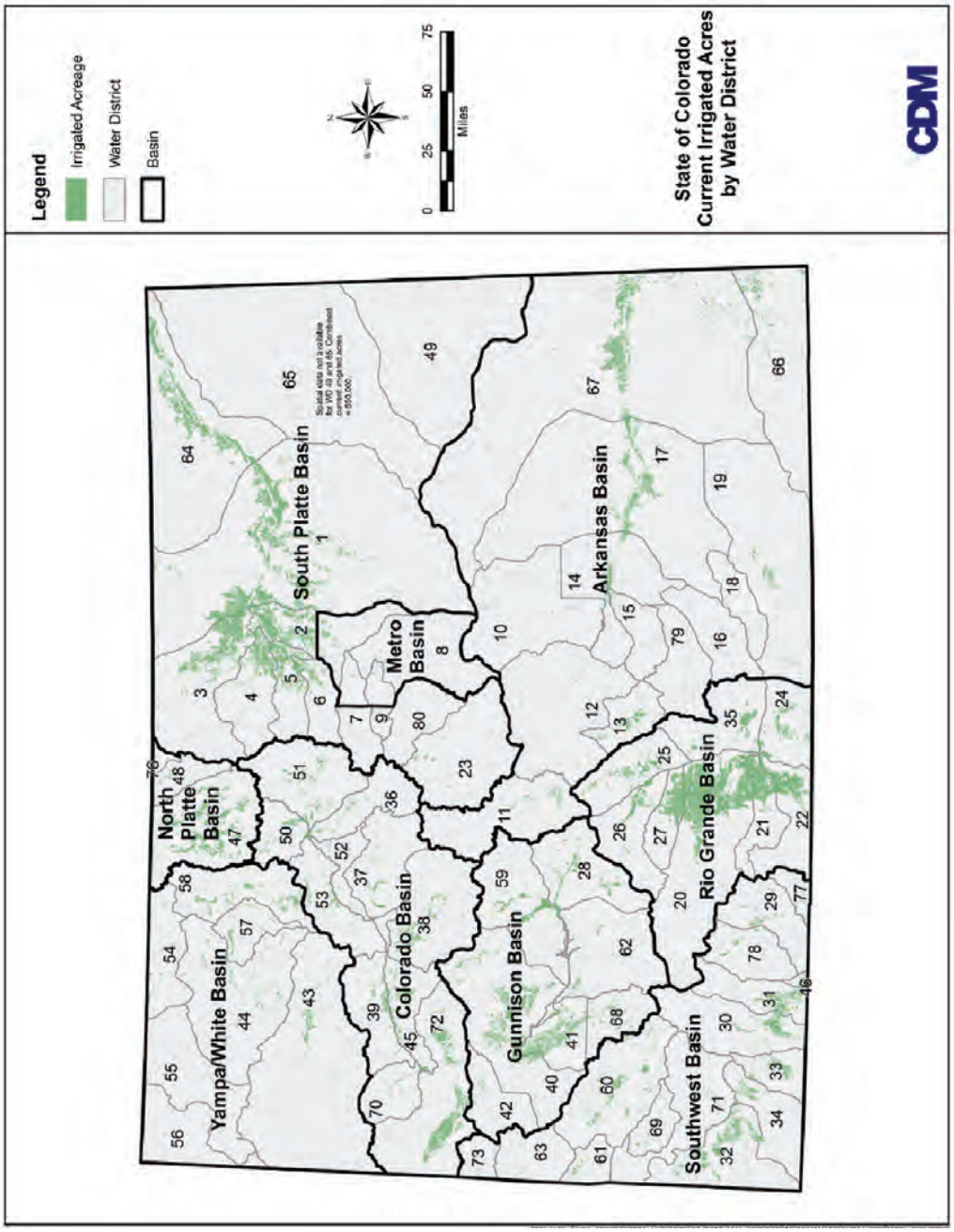

Figure 4-5 State of Colorado Current Irrigated Acres by Water District

4.3.2.2 Future Irrigated Acres Results

Table 4-8 shows the results of future irrigated acres analysis. Future irrigated acres in Colorado may decrease by 115,000 to 155,000 acres due to urbanization alone, under low and high population growth scenarios, respectively. The basins with largest expected loss of irrigated acres due to urbanization are the South Platte, Colorado, and Gunnison Basins.

Table 4-8 also shows the potential loss of irrigated acres due to other reasons. The South Platte, Republican, and Rio Grande Basins are expected to lose irrigated acres due to a variety of factors, as follows:

- For the South Platte Basin, up to 14,000 irrigated acres have been taken out of production in the last 5 years because a shortage of augmentation water led to numerous wells being shut down in the central South Platte Basin in 2006. This reduction of irrigated acres is expected to be more or less permanent since the cost of acquiring augmentation water in the central South Platte River Basin is prohibitive for the agricultural community. This reduction in acreage is not reflected in the current irrigated acreage.

- In the Republican River Basin, a total of about 35,000 acres were removed from irrigation through conservation programs by 2009. An additional 64,000 acres are estimated to be removed from irrigation due to the declining saturated thickness of the Ogallala aquifer, and another 10,000 acres are to be dried up in District 65 in association with the construction of a pipeline for compact compliance reasons.

- In the Rio Grande Basin, the estimated decline in irrigated acres (80,000 acres) is related to the protection of the water table and senior water rights in the San Luis Valley through the establishment of Groundwater Management Subdistricts. This action would also assist Colorado in complying with the Rio Grande Compact by providing augmentation water to the Rio Grande and Conejos River to offset well depletions.

Finally, Table 4-8 identifies approximately 26,000 acres that will be dried-up in the Arkansas, Colorado, and South Platte River Basins as a result of planned agricultural to municipal transfers. Additional transfers that may be required to meet M&I gaps are expected to decrease irrigated acreage from 160,000 acres to 334,000 acres statewide.

Overall, the future irrigation analysis shows that Colorado may lose about 500,000 to 700,000 acres of its irrigated lands by 2050 due to all factors combined. These acreages represent 15 to 20 percent of the current total irrigated lands. **Figure 4-6** shows the range of potential changes by basin. **Figure 4-7** shows the comparison between current irrigated acres and 2050 irrigated acres as both numbers of acres and percent change. Note that the basin with the highest percent change (Yampa-White, 34,000 acres, 29 percent) is not the same as the basin with the highest change in total acres (South Platte, 224,000 acres, 27 percent).

Table4-8 Future Irrigated Acres by River Basin

Basin	Current Irrigated Acres	Decrease in Irrigated Acres Due to Urbanization		Decreases in Irrigated Acres Due to Other Reasons	Decreases in Irrigated Acres from Planned Agricultural to Municipal Transfers	Decreases in Irrigated Acres from Agricultural to Municipal Transfers to Address M&I Gap		Estimated 2050 Irrigated Acres	
		Low	High			Low	High	Low	High
Arkansas	428,000	2,000	3,000	—	7,000	26,000	63,000	355,000	393,000
Colorado	**268,000**	**40,000**	**58,000**	**—**	**200**	**11,000**	**19,000**	**190,800**	**216,800**
Gunnison	272,000	20,000	26,000	—	—	1,000	2,000	244,000	251,000
North Platte	117,000	—	—	—	—	—	—	117,000	117,000
Republican	550,000	300	600	109,000	—	—	—	440,400	440,700
Rio Grande	622,000	800	1,000	80,000	—	2,000	3,000	538,000	539,200
South Platte	831,000	47,000	58,000	14,000	19,000	100,000	176,000	564,000	651,000
Southwest	259,000	4,000	6,000	—	—	3,000	7,000	246,000	252,000
Yampa-White	119,000	1,000	2,000	—	—	3,000	64,000	53,000	115,000
Statewide Total	**3,466,000**	**115,100**	**154,600**	**203,000**	**26,200**	**146,000**	**334,000**	**2,748,200**	**2,975,700**

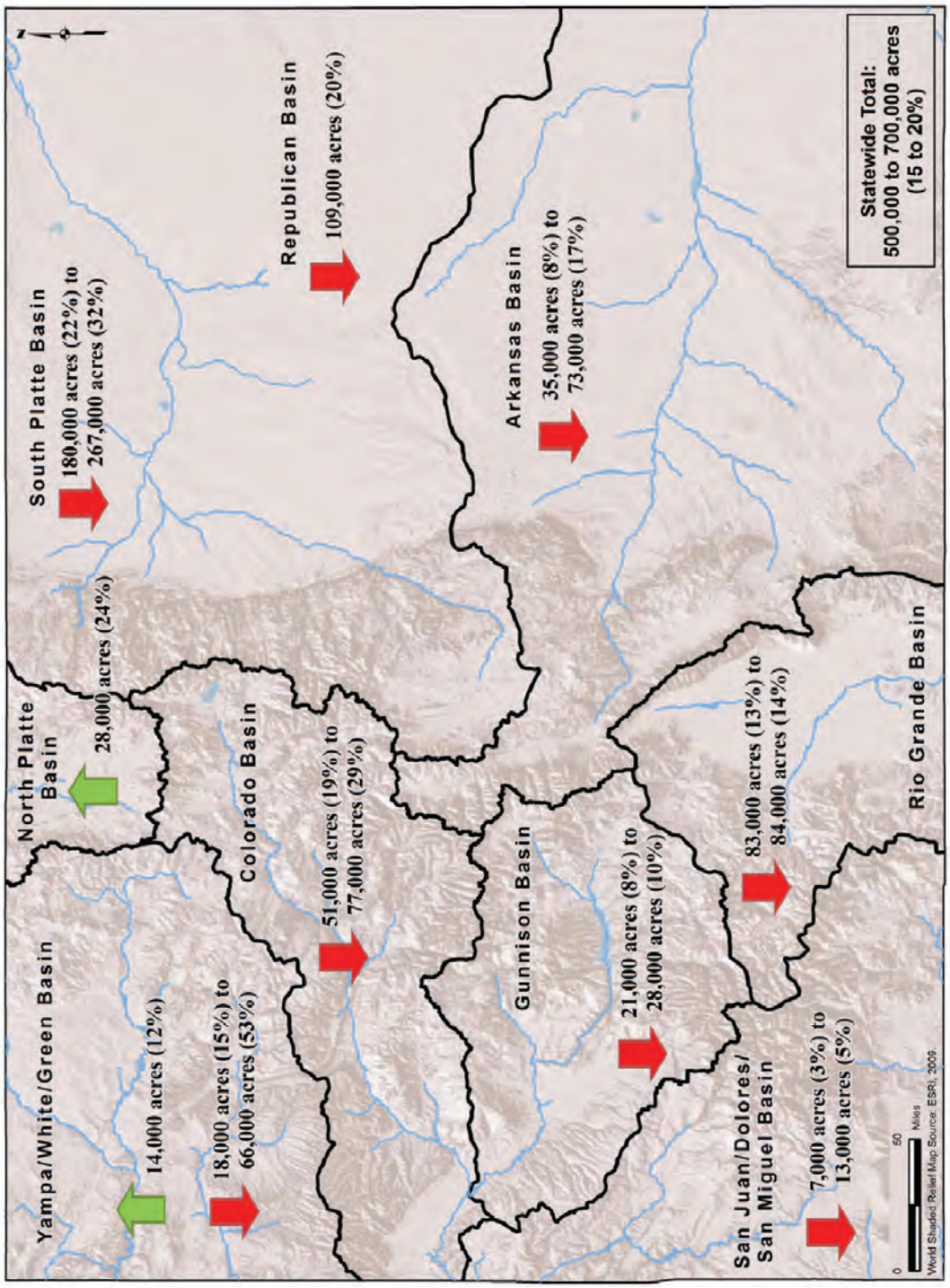

Figure 4-6 Potential Changes in Irrigated Acres by 2050

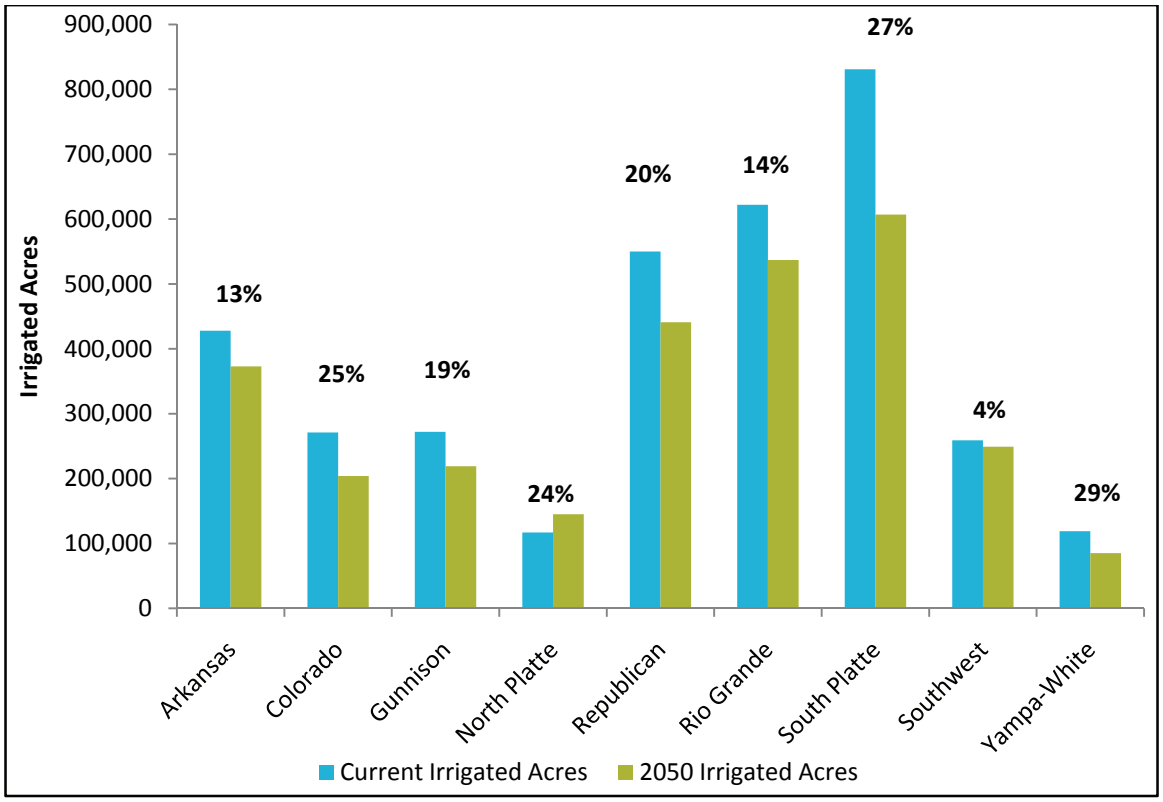

Figure 4-7 Comparison of Current and 2050 Irrigated Acres

4.3.2.3 Current Agricultural Demand Results

Table 4-9 summarizes results of the average annual current agricultural demand by basin. It shows irrigated acres, IWR, WSL CU, and shortage (difference between IWR and WSL CU). Non-irrigation demand is also shown by basin. **Figures 4-8** and **4-9** show the current WSL CU and shortage amounts by basin. Basins with the highest agricultural water demand include the South Platte, Rio Grande, and Republican.

Table 4-9 Estimated Current Agricultural Demand by Basin

Basin	Irrigated Acres	Irrigation Water Requirement (AFY)	Water Supply-Limited Consumptive Use (AFY)	Shortage (AFY)	Non-Irrigation Demand (AFY)
Arkansas	428,000	995,000	542,000	453,000	56,000
Colorado	**268,000**	**584,000**	**485,000**	**100,000**	**51,000**
Gunnison	272,000	633,000	505,000	128,000	54,000
North Platte	117,000	202,000	113,000	89,000	12,000
Republican	550,000	802,000	602,000	200,000	67,000
Rio Grande	622,000	1,283,000	855,000	428,000	45,000
South Platte	831,000	1,496,000	1,117,000	379,000	115,000
Southwest	259,000	580,000	382,000	198,000	46,000
Yampa-White	119,000	235,000	181,000	54,000	24,000
Statewide Total	**3,466,000**	**6,819,000**	**4,791,000**	**2,028,000**	**470,000**

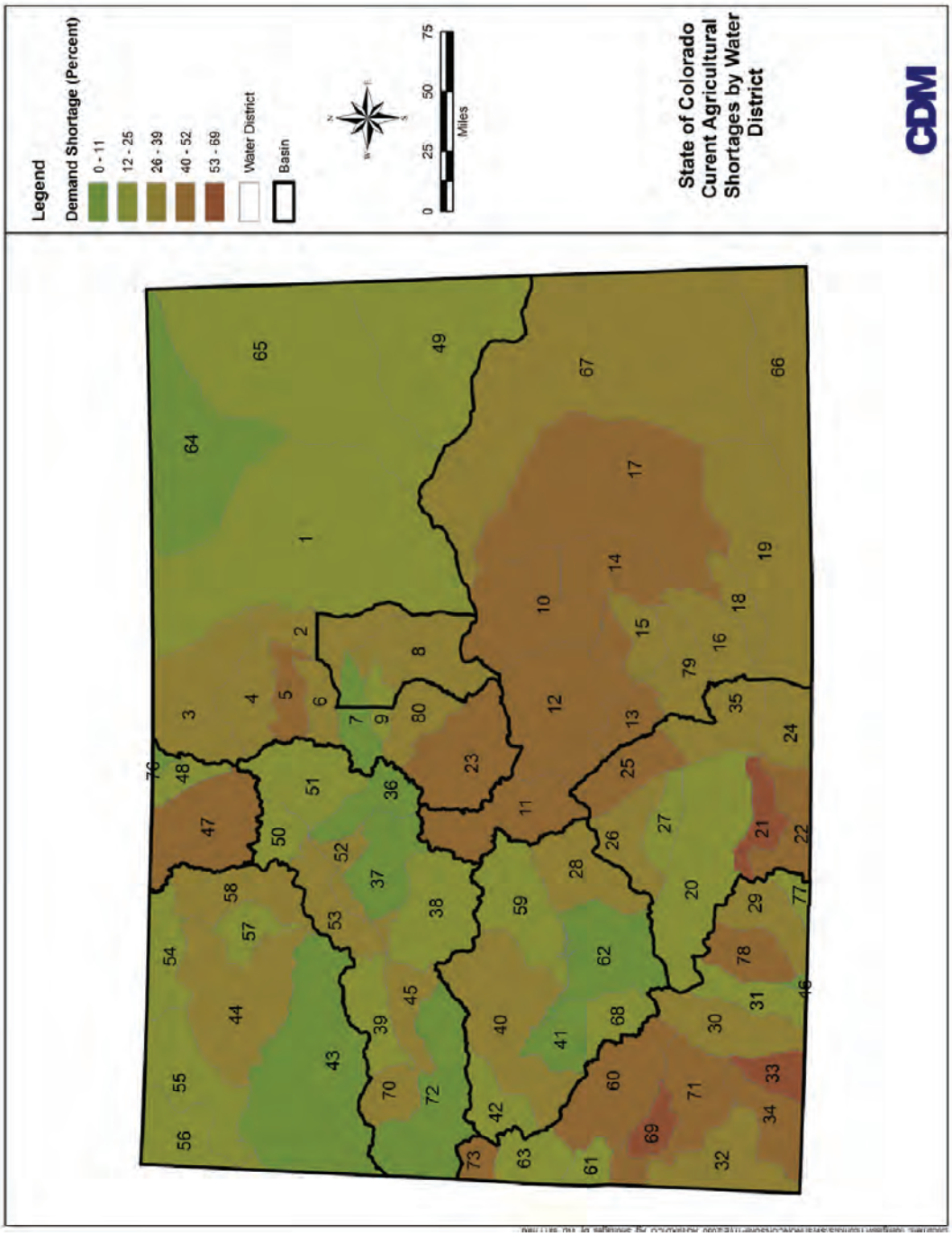

Figure 4-8 State of Colorado Current Agricultural Shortages by Water District

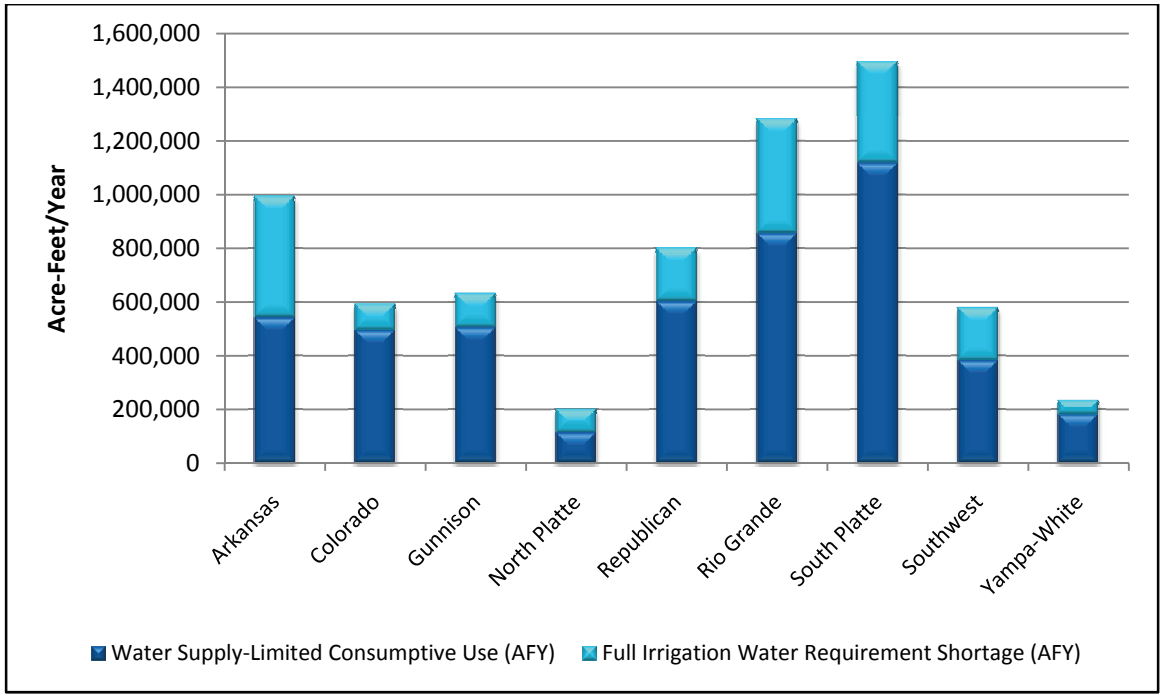

Figure 4-9 Current Agricultural Demands and Shortages

4.3.2.4 Future Agricultural Demand Results

Table 4-10 summarizes the estimated average annual agricultural demand by basin for the year 2050, assuming that historical climate and hydrology continue into the future. It shows irrigated acres, IWR, WSL CU, shortage, and non-irrigation demand. **Figure 4-10** shows the WSL CU and shortages by basin for the 2050 irrigated acres. Consistent with the projected decline in irrigated acres, declines in both irrigation and non-irrigation agricultural water demands are anticipated to occur in all basins except for the North Platte.

Table 4-10 Estimated 2050 Agricultural Demand by Basin

Basin	Irrigated Acres	Irrigation Water Requirement (AFY)	Water Supply-Limited Consumptive Use (AFY)	Shortage (AFY)	Non-Irrigation Demand (AFY)
Arkansas	373,000	862,000	476,000	386,000	49,000
Colorado	**204,000**	**443,000**	**366,000**	**77,000**	**38,000**
Gunnison	219,000	573,000	457,000	116,000	48,000
North Platte	145,000	250,000	140,000	110,000	14,000
Republican	441,000	640,000	480,000	160,000	5,000
Rio Grande	537,000	1,108,000	739,000	369,000	38,000
South Platte	607,000	1,094,000	820,000	274,000	84,000
Southwest	249,000	558,000	367,000	191,000	44,000
Yampa-White	85,000	209,000	170,000	39,000	17,000
Statewide Total	**2,860,000**	**5,737,000**	**4,015,000**	**1,722,000**	**337,000**

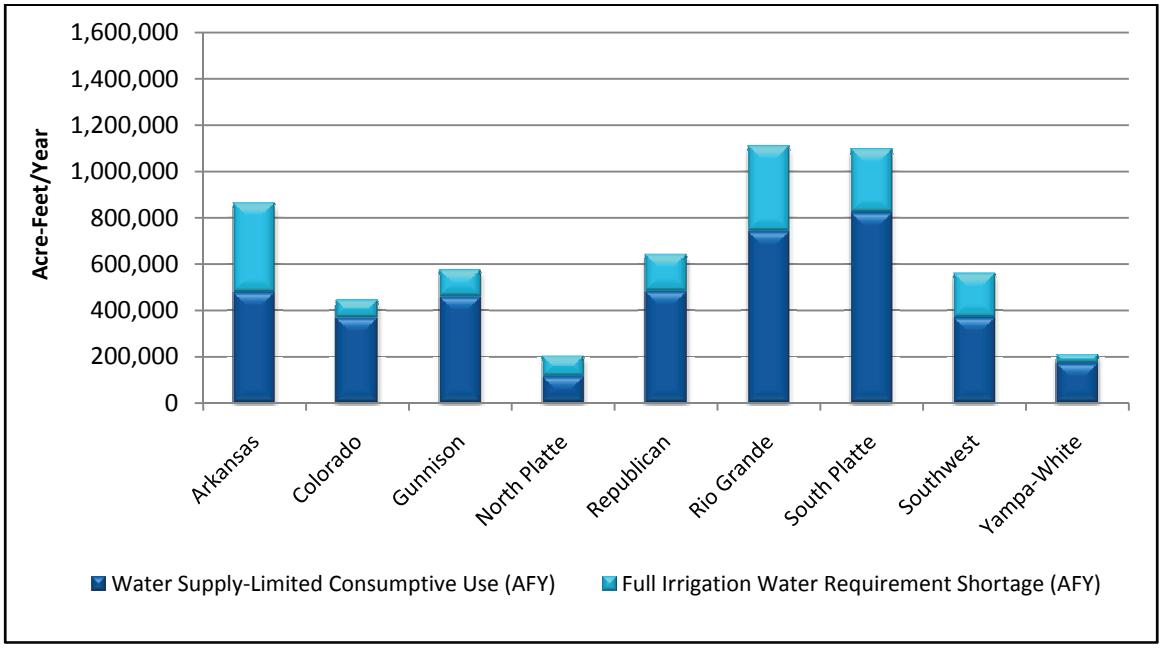

Figure 4-10 2050 Agricultural Demands and Shortages

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Section 5
Colorado Basin Consumptive Projects and Methods and the M&I Gap

5.1 Projects and Methods to Address the M&I Gap Overview

Section 4 of this report summarizes the consumptive water needs across the State of Colorado and the Colorado Basin. As discussed in Section 1, the Colorado Water for the 21st Century Act requires the basin roundtables to identify projects and methods to meet their consumptive needs.

Section 5.2 summarizes the major projects and methods identified to meet future municipal and industrial (M&I) consumptive needs; Section 5.3 documents the resulting assessment of M&I gaps.

In order to identify M&I projects and methods, the Colorado Water Conservation Board (CWCB) worked with water providers and the basin roundtables to update the Statewide Water Supply Initiative (SWSI) 1 identified projects and processes (IPPs). This information was used to estimate a low, medium, and high 2050 M&I gap corresponding to the M&I demand projections summarized in Section 4 and different IPP success rates. To be clear, an M&I "gap" in the context of this study is not indicative of a future water supply shortfall; rather, it is a future water supply need for which a project or method to meet that need is not presently identified.

It is important for the reader to recognize that the analyses documented in this section are intended for the purpose of "big picture" statewide planning. While data and other information were collected from individual water providers, the results presented herein are for the purpose of general statewide and basinwide planning and are not intended to be used for individual provider planning, site-specific analysis, or project-specific purposes.

5.2 Projects and Methods to Meet M&I Consumptive Needs

Water providers throughout Colorado are pursuing water supply projects and planning processes to help meet future water demands. These IPPs, if successfully implemented, have the ability to meet some, but not all of Colorado's 2050 M&I water needs. IPPs are defined as projects and methods local water providers are counting on to meet future water supply needs. Future M&I water supply needs that are not met by an IPP are considered an M&I water supply gap. The estimation of future M&I water supply gaps is dependent upon several factors, including current water use, forecasted future water use, and water provider predictions of new water supply that will be developed through IPPs.

Statewide, these analyses were performed on a countywide basis and aggregated by basin roundtable area. For the Front Range counties in the Arkansas, Metro, and South Platte Basins, the county results were aggregated to a regional subbasin level for presentation in this report and consistency with SWSI 1. The majority of population growth over the next 40 years is expected to occur in these basins.

5.2.1 Identified Projects and Processes Methodology

The first part of the M&I gap analysis is to calculate 2050 total new M&I water needs, which is described in Section 4. The second part of the 2050 M&I and SSI gap analysis is to calculate the anticipated yield from the water providers' 2050 IPPs, assuming 100 percent success rate. For counties with more than one surveyed water provider, all relevant information was compiled to create the most complete picture of projected water supplies in the county. This IPP yield is then subtracted from the 2050 net new water needs (i.e., demand increases above existing supplies) at the county level. Where the total water provider IPP yield in a county exceeded the projected county demand for the low, medium, or high scenarios, the extra water was assumed to not be available for redistribution to other counties unless otherwise noted.

Information on water providers' IPPs was obtained from the following sources:

- CWCB interviews and data collected from water providers throughout the state in 2009–2010
- Section 6 of the SWSI 1 report (published 2004, data based on projections to 2030)
- Basin roundtable updates (e.g., Arkansas 2008 report, June 2010 presentation by Applegate)

CWCB staff conducted outreach interviews in 2010 with most municipal water providers delivering 2,000 acre-feet per year (AFY) or more, including the top three water providers in each basin, where possible. Not every water provider responded; however, with significant basin roundtable assistance, many water providers submitted data in addition to the original list. This outreach was used to determine what projects and methods water providers are pursuing to meet their future needs along with confirmation of water demand data. In an effort to obtain more detailed data on providers' IPPs than was available for SWSI 1, interviewed entities were asked to delineate IPPs into the following categories:

- Agricultural water transfers
- Reuse of existing fully consumable supplies
- Growth into existing supplies
- Regional in-basin projects
- New transbasin projects
- Firming in-basin water rights
- Firming transbasin water rights

Passive and active conservation measures are not included in the categorized IPPs. Passive conservation is already factored into the 2050 M&I demand forecasts presented in Section 4. As requested by the Conservation Technical Advisory Committee and for the purposes of this analysis, active conservation is considered a strategy for meeting the M&I gap and is described in Section 7.

The categorized IPP data presented in this section is based on information provided by the interviewed water providers on what their firm treated water deliveries will be for each category of IPP. While some IPPs include features that could be applied across more than one category, CWCB relied upon the water providers' data to assign the various projects and methods to the single most appropriate category. For example, although not explicitly quantified herein, it is likely that the true yield anticipated from agricultural water transfers is higher, but many water providers have captured agricultural transfers in IPPs falling in other categories such as regional in-basin projects or firming in-basin water rights. Some entities may also own agricultural water rights that are presently being leased back to agricultural water users; future M&I use of these supplies may be considered by some water providers to be growth into

existing supplies. Based on these efforts IPP data were updated for 75 providers covering approximately 80 percent of the population in Colorado. Many of the quantified IPPs specified by the interviewed M&I water providers are identified in Appendix J of the SWSI 2010 Report.

The interview summary provided by CWCB identified and quantified many of the water providers' IPPs associated with each category. Where IPP information was derived from other sources, professional judgment was used to assign predicted yield to the most appropriate category. This approach was primarily applied to IPP data from the SWSI 1 report, which tallied IPPs by county or subbasin, but generally did not categorize yields from specified types of IPPs.

Because of the need for flexibility, reliability, and future uncertainty, many water providers design projects to meet needs based on planning numbers, which are often greater than current per capita water usage rates. Some specific reasons include—1) ensuring water supply if another system fails, 2) planning for drought or climate change, 3) an expected increase in commercial water use, or 4) concerns that one or more planned project will not be successfully implemented. Furthermore, many water rights limit the use of water to the specific water right holder, causing legal barriers to sharing water supplies. For these reasons, where the total potential volume of IPPs exceeded either the 2050 total water needs or the 2050 total water needs minus any provider-specified gaps, a pro-rata share reduction was applied to each IPP category relevant to that county or subbasin. For example, total quantified IPPs for the interviewed providers in a particular county exceed 50,000 AFY, but IPPs required to meet 2050 net new water needs range from 18,000 AFY to 30,000 AFY. A percentage of the total 50,000 AFY yield from IPPs is associated with each of the seven categories of IPPs, but since less IPP yield is actually needed to meet demands, the same category distribution percentages were applied to the lesser need. In other words, the amount of yield from each IPP category is reduced such that only the amount actually necessary to meet 2050 new water needs is applied.

Note, however, that this methodology and data presentation does not in any way preclude water providers from developing IPPs in excess of their 2050 needs. Rather, it is beyond the scope of this gap analysis to present data for individual water providers whose demand projections, planning horizon, and system reliability may differ from the regional analysis presented here. Any excess IPP volume quantified for a particular county is assumed to not be available to meet water supply gaps in other counties, unless specified otherwise. Likewise, there was no intention of implying intra-county sharing among water providers, unless specifically noted. By proportionally scaling back each entity's 2050 IPP yields when the sum of all entities' IPPs in a particular county exceed the forecasted 2050 net new water needs for that county—and explicitly accounting for provider-specified gaps—it is CWCB's intention to avoid implying that any one provider's excess yield would be used to meet the shortfall (i.e., gap) of another water provider.

5.2.2 Estimation of 2050 IPP Yield by Basin

A broad range of water management solutions with varying levels of supply are planned for each of the basins. The following sections summarize the yields of IPPs statewide and for each county or region in each basin at the 100 percent success rate. As described above, due to the number of counties and distinct areas in the Arkansas, Metro, and South Platte Basins, those basins are summarized by region, whereas each of the other basins is discussed at a county level. Because of the overall volume of demand and the size of the projected gaps in the South Platte and Arkansas Basins, those basins' IPPs lists are more populated than the other basins' lists.

Many water providers are pursuing multiple projects and will need to pursue all of these identified projects to meet their increased demand by the year 2050. This is due to the reality that each of the IPPs has associated risk and may not yield all of the anticipated water supply. Alternate IPP yield success rates (i.e.,

less than 100 percent) are addressed subsequently in Section 5.3.2. The results of calculations based on the alternate IPP success rates are incorporated into the gap analysis presented in Section 5.3.3. Additionally, many of these IPPs will benefit multiple beneficiaries and therefore address a number of objectives concurrently. However, challenges exist in determining funding sources and acquiring water rights to support the multiple uses. In addition to quantified IPP yields, the tables for each basin also include a general summary of the major projects and other IPPs in each county or region.

5.2.2.1 Statewide

Statewide, the new water supplies needed for M&I and self-supplied industrial (SSI) use by the year 2050—above and beyond all existing supplies—are estimated to range from about 600,000 AFY to nearly 1 million AFY (see Section 4). This range reflects the uncertainty associated with forecasting water demands 40 years into the future, in particular SSI demands associated with energy development and other market-driven commodities. Based on extensive interviews with water providers, input from basin roundtable and Interbasin Compact Committee (IBCC) members, and a thorough review of other pertinent information, IPPs have been identified that will meet a significant portion of these future new demands.

Ruedi Reservoir Contract

One factor affecting both demand and supply on the Western Slope is the availability of contract water from Ruedi Reservoir. These contracts are led by the U.S. Bureau of Reclamation (BOR) through their Loveland Office, which administers the Fryingpan-Arkansas (Fry-Ark) Project, of which Ruedi is a part. The reservoir was built to compensate the Western Slope for water diverted to the Front Range by the Fry-Ark Project and as such, a portion of Ruedi's storage water has been made available for M&I uses and to supplement endangered species flows in the "15-mile Reach" near Grand Junction. The effect of having this storage water available has been to keep contractors in priority by providing a central source of augmentation water to bolster flows downstream of the Fryingpan-Roaring Fork confluence.

Although the contract water is largely an emergency supply and has rarely been released, its presence is a critical part of the supply strategy for most municipalities between Basalt and Grand Junction. Because of the availability of Ruedi water, development in and around these municipalities has not been as constrained by water scarcity as may have been the case without Ruedi. The Basalt Water Conservancy District acts as a broker for Ruedi water, subcontracting small amounts to local individuals and subdivisions in the unincorporated areas of the Roaring Fork Valley. In those ways, the availability of Ruedi water has had the effect of increasing demand by removing constraints on growth associated with the difficulties of developing augmentation supplies elsewhere.

The exact amount of water that has been contracted from Ruedi is available from the BOR. The amount of water remaining available for contracting is subject to a certain amount of debate due to uncertainty about how Ruedi's inflow and other water obligations are calculated. The Colorado River District has contracted for a significant amount of Ruedi water, both as a means of maintaining local control over that water and as a strategy to provide additional flexibility in overall planning for water development on the Western Slope. One of the concerns about the availability and use of Ruedi's contract water is that it may, in the future, require major releases of water from the reservoir during times, and in amounts, that would undermine the recreational value of both the reservoir and the Fryingpan River. The Ruedi Water and Power Authority, representing the local governments in the Roaring Fork Valley, has long advocated for the acquisition of the remaining contract pool by local entities as a means of controlling both the future availability of that water and the management of Ruedi to preserve its recreational and environmental values.

Applying the general methodology for assessing IPPs described in Section 5.2.1, the IPPs were grouped into seven primary categories. **Table 5-1** identifies the anticipated range of yield from each category for each basin. For this and many of the subsequent tables, values are presented as a range, with the low and high yield values shown. Where the yield values do not change from low to high, a single value is shown rather than a range. Although the interviewed water providers generally provided demand and IPP data for a 2050 medium growth scenario, the ranges presented herein derive from the use of low, medium, and high population and demand levels for 2050 for the various analyses associated with SWSI 2010.

Table 5-1 Major Categories of Identified Projects and Processes by Basin (Yields at 100% Success Rate) [1]

Basin	Agricultural Transfer (AFY)	Reuse (AFY)	Growth into Existing Supplies (AFY)	Regional In-Basin Project (AFY)	New Transbasin Project (AFY)	Firming In-Basin Water Rights (AFY)	Firming Transbasin Rights (AFY)	Total IPPs at 100% Success Rate (AFY)
Arkansas	9,200 – 11,000	23,000 – 32,000	2,300 – 2,600	37,000	0	6,100 – 7,300	10,000 – 11,000	88,000 – 100,000
Colorado	**2,900 – 8,000**	**500**	**14,000 – 28,000**	**13,000 – 15,000**	**0**	**11,000 – 19,000**	**0**	**42,000 – 70,000**
Gunnison	400 – 500	0	1,100 – 1,700	11,000 – 15,000	0	900	0	14,000 – 18,000
Metro	20,000 – 33,000	14,000 – 21,000	55,000 – 86,000	34,000 – 39,000	13,000 – 23,000	900 – 1,400	3,500 – 4,800	140,000 – 210,000
North Platte	0	0	100 – 300	0	0	0	0	100 – 300
Rio Grande	0	0	2,900 – 4,300	0	0	3,000 – 4,300	0	5,900 – 8,600
South Platte	19,000 – 20,000	5,000 – 7,000	20,000 – 30,000	37,000 – 39,000	0	22,000 – 26,000	18,000 – 21,000	120,000 – 140,000
Southwest	0	0	5,200 – 7,300	9,000 – 13,000	0	0	0	14,000 – 21,000
Yampa-White	0	0	3,500 – 4,900	6,600 – 9,000	0	0	0	10,000 – 14,000
Total	**51,000 – 73,000**	**43,000 – 61,000**	**100,000 – 160,000**	**150,000 – 170,000**	**13,000 – 23,000**	**44,000 – 58,000**	**32,000 – 37,000**	**430,000 – 580,000**

[1] Aggregated basin total values rounded to two significant digits to reflect increased uncertainty at larger geographic scales.

As shown in Table 5-1, quantified IPPs at 100 percent yield success would provide approximately 430,000 AFY, or about 72 percent of the new demands under the low growth scenario. At the high end, again assuming 100 percent success rate, IPPs would total about 580,000 AFY and represent approximately 58 percent of the high demand increase. The largest categories of IPP yields by volume are projected to be regional in-basin projects (150,000 AFY to 170,000 AFY) and growth into existing supplies (100,000 AFY to 160,000 AFY). **Figure 5-1** depicts the data graphically; for the individual basins that follow, the corresponding figures can be found in Appendix J of the SWSI 2010 Report.

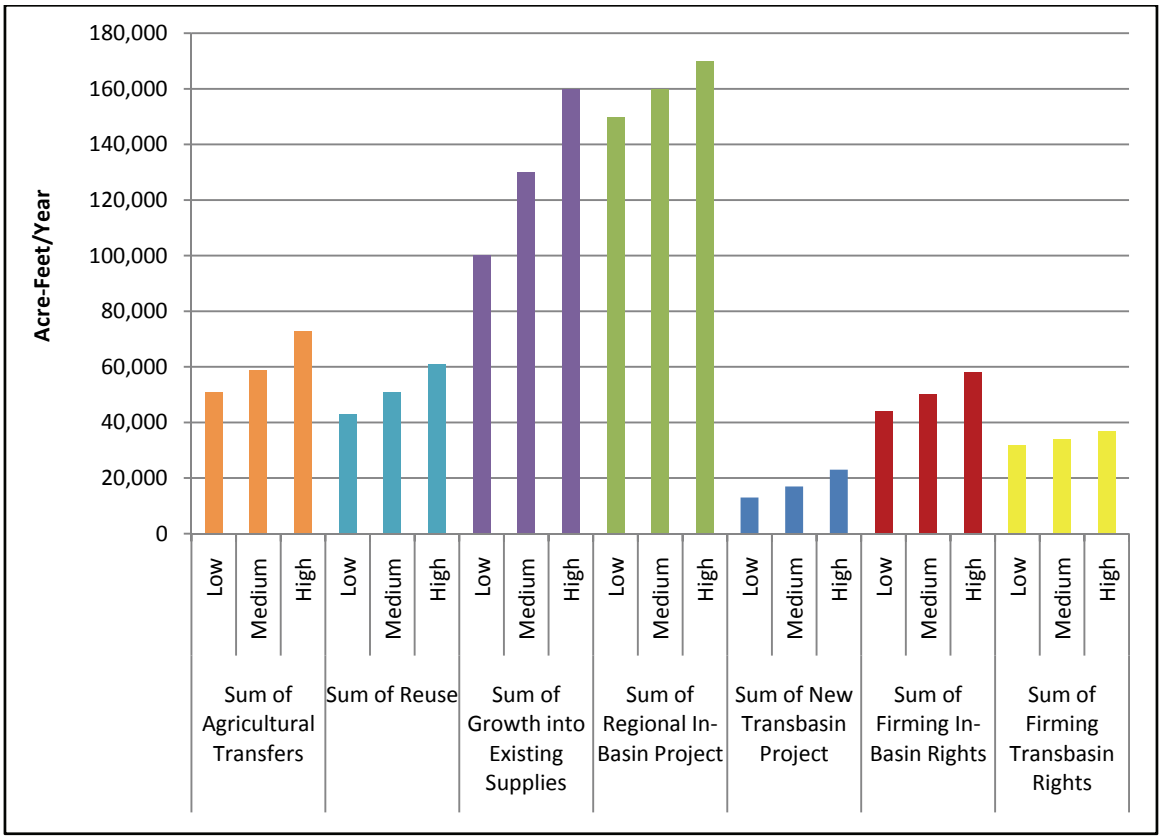

Figure 5-1 Statewide Summary of Yield for IPP Categories at 100% Success Rate

5.2.2.2 Colorado Basin

M&I and SSI needs are expected to increase dramatically in the Colorado Basin by 2050. It is expected that augmentation contracts available out of Ruedi and Wolford Reservoirs will be a key part of meeting 2050 demands in the basin. In addition, agricultural transfers will continue from purchases, developer donations, and development of irrigated lands. Existing supplies will be used in all Colorado Basin counties, and agricultural transfers will be part of the future supplies used to meet increased demands in Eagle, Garfield, and Mesa Counties.

Summit and Grand Counties anticipate significant M&I gaps as a result of limited flows available for development in the Fraser River system and future increases in transbasin diversions associated with projects planned by Front Range water providers. These planned projects have water rights that are senior to many of the in-basin M&I rights and are currently undergoing National Environmental Policy Act (NEPA) review. The Upper Colorado River Study outlined potential solutions, but these solutions have a high level of uncertainty and implementation challenges due to lack of physical

Eagle River Memorandum of Understanding

Another potential source of future water development in the mainstem of the Colorado River Basin is detailed in the "Eagle River Memorandum of Understanding (MOU) " that was signed in 1998 by Cities of Aurora and Colorado Springs, the Vail Consortium, the Climax Mine, and the Colorado River District.

The MOU calls for a joint-use project that would provide 10,000 AF of firm annual yield to the West Slope interests, 20,000 AF of yield on a 25-year rolling average to the cities, and 3,000 AF of storage for the Climax Mine. Four joint-use project alternatives listed in the MOU are a Climax-based alternative, a Homestake Creek-based alternative, a Camp Hale groundwater-recharge reservoir, and mixtures of these.

availability of water and permitting issues for any structural alternatives. As a result, gaps are shown in Grand and Summit Counties.

Other key IPPs identified in the Colorado Basin include the Hunter Reservoir enlargement (Ute Water Conservancy District) in Mesa County and the West Aspen Reclaimed Water Project in Pitkin County. Additionally, the Eagle River Joint Use Project will provide up to 10,000 AFY of dry year firm yield for entities in Eagle County. Anticipated yields from each category of IPPs at 100 percent success rate are summarized for the Colorado Basin in **Table 5-2**.

Table 5-2 Colorado Basin IPP Summary at 100% Success Rate

Region or County	Agricultural Transfer (AFY)	Reuse (AFY)	Growth into Existing Supplies (AFY)	Regional In-Basin Project (AFY)	New Transbasin Project (AFY)	Firming In-Basin Water Rights (AFY)	Firming Transbasin Rights (AFY)	Total IPPs at 100% Success Rate (AFY)
Eagle County	2,100 – 4,500	0	5,600 – 10,700	400	0	2,000 – 4,600	0	10,100 – 20,200
Eagle County IPPs • Growth into existing supplies and planned water rights acquisitions • Eagle River Joint Use Project • Ruedi Reservoir contracts for augmentation • Agricultural transfers								
Garfield County	200	0	6,400	3,500	0	6,500	0	16,600
Garfield County IPPs • Growth into existing supplies • Ruedi and Wolford Reservoir contracts for augmentation • Agricultural transfers								
Grand County	0	0	300 – 800	2,400	0	0	0	2,700 – 3,200
Grand County IPPs • Growth into existing supplies • UPCO								
Mesa County	700 – 3,200	0	1,300 – 6,500	0	0	1,900 – 4,500	0	3,900 – 14,200
Mesa County IPPs • Growth into existing supplies • Ruedi and Wolford Reservoir contracts for augmentation • Hunter Reservoir enlargement • Agricultural transfers								
Pitkin County	0	500	700 – 3,300	0	0	700 – 3,200	0	1,900 – 7,000
Pitkin County IPPs • Growth into existing supplies • Ruedi Reservoir contracts for augmentation • West Aspen Reclaimed Water Project								
Summit County	0	0	0	6,900 – 9,200	0	0	0	6,900 – 9,200
Summit County IPP • UPCO								
Total[1]	**2,900 – 8,000**	**500**	**14,000 – 28,000**	**13,000 – 15,000**	**0**	**11,000 – 19,000**	**0**	**42,000 – 70,000**

[1] Aggregated basin total values rounded to two significant digits to reflect increased uncertainty at larger geographic scales.

5.3 M&I Gap Analysis

The IPPs being pursued by local water providers represent significant quantities of water and the implementation of these local projects and plans is critical to meeting Colorado's future water supply needs. However, even with the implementation of the IPPs, there are still remaining M&I and SSI consumptive water supply gaps that will need to be satisfied. As stated previously, the calculated gaps do not necessarily represent a future water supply shortage, but the gaps do demonstrate where additional work is needed to identify projects and methods to meet those future needs. The following sections summarize the calculations and results of the 2050 M&I and SSI gap analysis. As described previously, this analysis includes 2050 low, medium, and high gap values to account for the inherent uncertainty in long-range population, demand, and water supply forecasting. Future M&I and SSI demands were assessed in Section 4 of this report.

Section 5.3.1 presents the M&I and SSI gap calculation methodology generally, followed by details on the variations that occur within the calculations for each basin. The calculations as described in Section 5.3.1 are based on the assumption of 100 percent success rate for the development of IPP yield. Section 5.3.2 describes alternate (i.e., less than 100 percent) IPP yield success rates for each basin as they are applied to estimate the 2050 medium and high gaps. Section 5.3.3 summarizes the results of the gap analysis at the statewide level and for each of the nine basin roundtable areas.

The results of the gap analysis presented in this report are based on the estimated firm yield of IPPs. Furthermore, the demand values that are integral to the gap calculations are based on water providers' treated water deliveries and do not account for losses during raw water collection, treatment, and distribution, which are highly variable depending on, among other things, water source, types of treatment processes, and age and condition of distribution system. Additionally, there are many future uncertainties such as the potential for climate change, drought, infrastructure failure, and other factors. Therefore, raw water needs are very likely to be greater than the gap values presented in this report.

Note that current and future agricultural consumptive demands and shortages were assessed in Section 4 of this report. Calculated irrigation shortages are based on available water supply being less than the ideal amount required for meeting the CU requirements of a particular crop. Changes in these calculated results for 2050 relative to 2008 are generally driven by the anticipated loss of irrigated land to development and other factors. The discussions that follow apply only to the M&I and SSI consumptive gap analysis.

5.3.1 M&I Gap Analysis Methodology

For the purpose of this study, the M&I and SSI water supply gap is defined as follows:

M&I and SSI Water Supply Gap = 2050 Net New Water Needs – 2050 IPPs

where:

2050 Net New Water Needs = (2050 low/medium/high M&I baseline demands – high passive conservation - current M&I use) + (2050 low/medium/high SSI demands – current SSI use)

2050 IPPs = Water Provider Anticipated Yield from: Agricultural Transfers + Reuse + Growth into Exiting Supplies + Regional In-basin Projects + New Transbasin Projects + Firming In-basin Water Rights + Firming Transbasin Water Rights

If the available IPPs exceeded the 2050 water needs for a particular county, the IPPs were reset equal to the 2050 water needs. As stated previously herein, this calculation effectively scales back the yield of each IPP in a pro-rata fashion in order to present only the amount of yield necessary to meet water supply needs at

the 2050 planning horizon. Sometimes this occurs for all three growth scenarios, sometimes for only low or low and medium. It is generally assumed that one county's surplus IPPs would not be reallocated to another county and that one provider's surplus would not be specifically allocated to meet another provider's gap. This approach was applied in all basins, unless specified otherwise.

The 2050 M&I and SSI gap is referred to in the results tables (see Section 5.3.3) as the "information/real" gap. The "real" gap is based on known numerical data from the *Demands to 2050 Report*, water provider interviews and data, SWSI 1, and other sources. Based on this information, 2050 M&I and SSI demand forecasts exceed the anticipated yields of water providers' IPPs and the result is a real, defined gap. An "information" gap arises due to a lack of numerical data to support more detailed gap quantification for some water providers or even counties and subbasins.

The preceding description represents the general approach to the M&I gap analyses, with the yields of IPPs based on the 100 percent success rate. However, the process was modified as necessary for each county and basin based on the available source data. The following sections outline variations to the methodology in each basin. These are general descriptions and do not necessarily capture every variation for every county; however, additional details about the calculations for each county or region are provided in Appendix J of the SWSI 2010 Report.

Following are the assumptions used to revise the gap calculations for the Colorado Basin:

- The 2050 net new water needs were calculated based on the M&I *Demands to 2050 Report* as described for the general approach.
- Provider-specified gaps were quantified based on CWCB interview data.
- IPPs for Colorado Basin counties were assessed as described in Section 5.2.2.2.
- The information/real gap was assessed based on provider-specified gaps and/or the difference between 2050 total water needs and IPPs.

Initial IPPs and information/real gap estimates were adjusted as necessary such that IPPs plus information/real gap equals 2050 net new water needs.

5.3.2 Gap Analysis with Alternate IPP Yield Scenarios

The assumptions and calculations described in Section 5.3.1 above evaluate the gap based on a 100 percent success rate for IPP yield development. To assess the full range of the 2050 M&I and SSI Gap, CWCB developed three potential scenarios to bracket the range of the M&I and SSI gap for low to high scenarios. Each scenario has a variable IPP yield success rate applied as a percentage of total IPP yield. For the low gap scenario, it was assumed that 100 percent of the IPPs (see Section 5.2.1) could be applied to the 2050 net new water needs.

For the medium and high gap estimates, the yield of the IPPs was assumed to be varied based on discussions from the IBCC, CWCB, and basin roundtables. For the medium gap scenario, it was assumed that the IPP yield would be reduced based on percent success rates discussed by IBCC in their scenario discussions for the alternative portfolio (see Section 7). IPP yield for the high gap scenario is assumed to be reduced based on the percent success rates as defined in the status quo portfolio that has been discussed by the IBCC. The percentage success rates for IPP yields for the medium and high scenarios are presented in **Table 5-3**.

Table 5-3 IPP Success Rates for the Medium and High Gap Scenarios

Basin	IBCC Alternative Portfolio IPP Yield Success Rates	IBCC Status Quo Portfolio IPP Yield Success Rates
Arkansas	90%	75%
Colorado	**90%**	**90%**
Gunnison	90%	90%
Metro	60%	50%
North Platte	90%	90%
Rio Grande	90%	90%
South Platte	60%	40%
Southwest	75%	75%
Yampa-White	90%	90%

The gap calculations based on alternate IPP yield success rates are best demonstrated by example. The Colorado Basin has an existing (2008) demand of 68,000 AFY and a 2050 low growth demand of about 132,000 AFY, representing an increase of nearly 65,000 AFY. IPPs associated with the Colorado Basin low growth scenario are 42,000 AFY (at 100 percent implementation), leaving a 2050 supply gap of 22,000 AFY under the low gap scenario. The Colorado Basin has a 2050 medium growth demand of 150,000 AFY, representing an increase of 82,000 AFY over the existing demand. Medium growth IPPs total 54,000 AFY at 100 percent yield; however, only 90 percent (49,000 AFY) of the yield is assumed to be successfully developed under the medium gap scenario. The result is a gap of about 33,000 AFY in 2050. High growth scenario demands are approximately 180,000 AFY, which is an increase of about 110,000 AFY over the existing scenario. High growth IPPs total 70,000 AFY at 100 percent yield, but under the high gap scenario, again only 90 percent (63,000 AFY) success is achieved. Thus, the Colorado Basin high gap is about 48,000 AFY.

A similar process is utilized for the other basins. For the medium and high statewide analyses, the success rates in Table 5-3 are applied to each basin prior to calculating the overall gaps on an aggregate basis.

5.3.3 2050 M&I and SSI Gap Analysis Results

The water supply gaps resulting from the assumptions and calculations defined in Section 5.3.1 and Section 5.3.2 are summarized in the following sections, first statewide, then for each basin by subbasin (region) or county. The full set of gap results implies nine total gap scenarios based on low, medium, and high M&I demands and three IPP yield scenarios (100 percent success rate, an alternative success rate, and a status quo success rate). For the purpose of discussion, however, the results are reduced to three scenarios in the tables presented in the following sections. These three scenarios encapsulate the full range of anticipated M&I and SSI water supply gaps in 2050, from the lowest low gap scenario (lowest demands with 100 percent IPP success rate) to the highest high gap scenario (high demands with status quo IPP success rates).

5.3.3.1 Statewide

Colorado faces a significant M&I water supply gap in 2050. Under the low gap scenario (low demands and 100 percent IPP success rate), the statewide gap is 190,000 AFY. Under the medium gap scenario (medium demands and an alternative IPP success rate), the statewide gap is about 390,000 AFY. Under the high gap scenario (high demands and status quo IPP success rate), the statewide gap is about 630,000 AFY. By 2050, Colorado's M&I gap could be between 32 percent and 66 percent of new M&I demands.

Table 5-4 provides a summary of each basin's increased M&I and SSI demands relative to current conditions (defined for this study as 2008), the amount of that increase met by the IPPs, and the results of the gap calculations. In general, the low IPPs plus the low remaining M&I and SSI gap equal the low increase in M&I and SSI demand, with some minor variability due to rounding at the county or regional level. The same is true for the medium and high values. The Arkansas and Metro Basins are exceptions to this rule due to the inclusion of additional gap volumes associated with the replacement of existing nonrenewable groundwater sources.

Table 5-4 Statewide M&I and SSI Gaps in 2050[1]

Basin	Increase in M&I and SSI Demand (AFY)			Estimated Yield of Identified Projects and Processes (AFY)			Estimated Remaining M&I and SSI Gap after Identified Projects and Processes (AFY)		
				100% IPP Success Rate	Alternative IPP Success Rates	Status Quo IPP Success Rates	Gap at 100% IPP Success Rate	Gap at Alternative IPP Success Rates	Gap at Status Quo IPP Success Rates
	Low	Med	High	Low	Med	High	Low	Med	High
Arkansas[2]	110,000	140,000	170,000	88,000	85,000	76,000	36,000	64,000	110,000
Colorado	**65,000**	**82,000**	**110,000**	**42,000**	**49,000**	**63,000**	**22,000**	**33,000**	**48,000**
Gunnison	16,000	19,000	23,000	14,000	14,000	16,000	2,800	5,100	6,500
Metro[3]	180,000	210,000	280,000	140,000	97,000	100,000	63,000	130,000	190,000
North Platte	100	200	300	100	200	300	0	20	30
Rio Grande	7,700	9,900	13,000	5,900	6,400	7,700	1,800	3,600	5,100
South Platte	160,000	180,000	230,000	120,000	78,000	58,000	36,000	110,000	170,000
Southwest	20,000	25,000	31,000	14,000	13,000	15,000	5,100	12,000	16,000
Yampa-White	34,000	48,000	95,000	10,000	11,000	13,000	23,000	37,000	83,000
Total	**590,000**	**710,000**	**950,000**	**430,000**	**350,000**	**350,000**	**190,000**	**390,000**	**630,000**

[1] Aggregated basin total values rounded to two significant digits to reflect increased uncertainty at larger geographic scales.
[2] Arkansas gaps include additional 13,500 AFY for Urban Counties replacement of nonrenewable groundwater supplies.
[3] Metro gaps include additional 20,850 AFY for South Metro replacement of nonrenewable groundwater supplies.

Colorado faces immediate M&I water supply needs. **Figure 5-2** illustrates the timing of the statewide M&I and SSI gap for the medium gap scenario. The statewide existing supply is 1,161,000 AFY and is assumed to remain constant through 2050, except for the replacement of nontributary groundwater in Douglas and El Paso counties. Under the medium gap scenario Colorado's immediate M&I water supply needs are met with the successful implementation of the IPPs. The associated yield of the IPPs increases steadily from 2010 through 2020, then at a higher rate of growth through 2030. Under the medium gap scenario, the IPPs are fully implemented by 2030 and yield about 350,000 AFY. Without the successful implementation of additional IPPs, increases in demand after 2030 are assumed to be gap, leading to a 2050 M&I gap of approximately 390,000 AFY for the medium gap scenario.

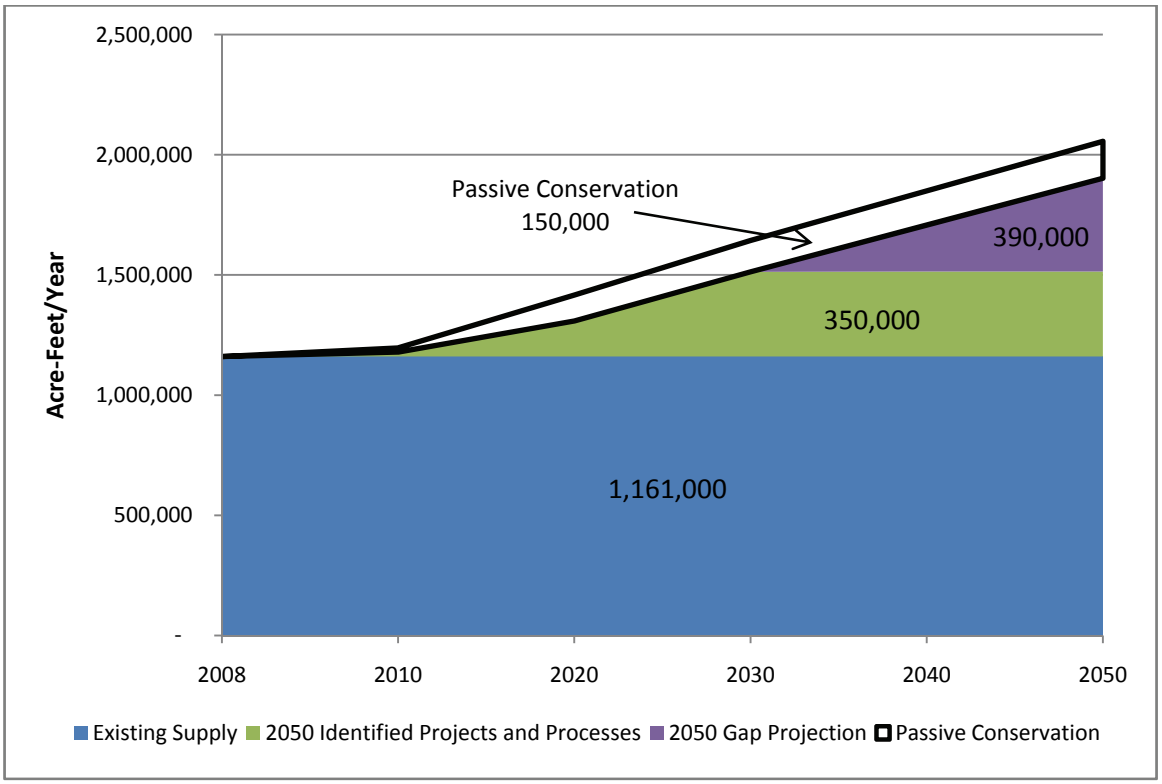

Figure 5-2 Statewide M&I and SSI Gap Summary Medium Scenario (IPPs at 70% Success Rate)

Note that while this plot does illustrate the temporal evolution of existing supplies, IPPs, and the gap, it is not intended to serve as a definitive timeline for the development of these parameters. A level of uncertainty remains for most components of this analysis; demand increases may come sooner or later than projected and IPPs may have more or less success than anticipated in these calculations. Thus, the figure functions as a representation of the interrelated nature of IPPs and the gap. At any given point in time, the sum of existing supplies, IPPs, and gap are equal to demands. The figure illustrates that the need for successful implementation of the IPPs is immediate. As long as the development of IPPs keeps pace with demands, the gap will be minimal. However, if demands continue to increase beyond the development of presently identified IPPs or if successful IPP yield development occurs at a lower rate, the gap will continue to grow in magnitude and will appear at an earlier point in time. It is also important to note the spatial variability of the M&I gap. Some areas of the state will have an M&I gap sooner than others. Plots illustrating the low and high gap scenario statewide and the low, medium, and high gap scenarios for all basins are included in Appendix J of the SWSI 2010 Report.

Figure 5-3 illustrates the relative percentages of 2050 net new water needs occupied by IPPs and the gap for each basin for the medium gap scenario. The pie chart shown on the map for each basin is scaled to represent the magnitude of the 2050 medium demand. IPP success rates are defined as shown for the "Alternative Portfolio" in Table 5-3; at the statewide level, the overall IPP success rate is approximately 70 percent for the medium gap scenario.

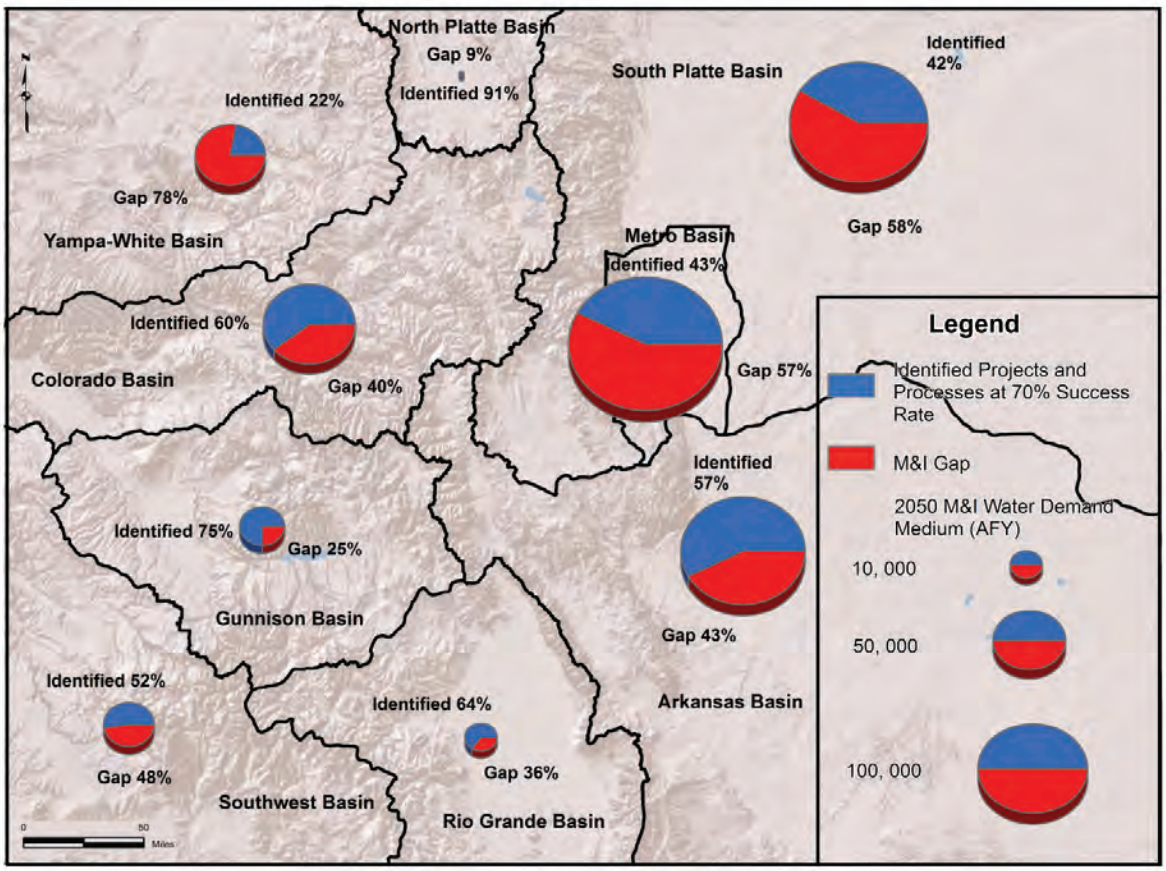

Figure 5-3 2050 M&I and SSI Gap Analysis – Medium Gap Scenario

For the Arkansas, Colorado, Gunnison, North Platte, and Rio Grande Basins, IPPs (illustrated as the blue part of the pie charts) meet 50 percent or more of the 2050 medium demand as a result of 90 percent IPP yield success rate in these basins. Southwest Basin IPPs also exceed 50 percent of 2050 medium demand despite a success rate of only 75 percent. The Yampa-White Basin has a 90 percent IPP yield success rate for the medium gap scenario, but the high yet uncertain demands associated with future SSI uses result in a very large water supply gap (78 percent, illustrated in red) in 2050. Future M&I and SSI water supply gaps for the South Platte and Metro Basins exceed 50 percent due to significantly reduced IPP yield success rates, at 60 percent. For these basins in particular, and also in the Arkansas Basin, a significant reduction in the success of yield development from planned projects and processes identified by Front Range water providers will likely lead to much greater increases in agricultural transfers as a means to meet future demands (see Section 4).

It must be clearly understood that the low, medium, and high gap scenarios evaluated in this study are based on assumptions about the implementation of IPPs made for the purposes of conducting the analyses. In reality, both demand growth and the development of IPPs will be impacted by various factors that will likely cause them to fall somewhere between the low and high values highlighted above. However, it remains highly probable that there will be some level of gap regardless of the level of IPPs development, and a portfolio of solutions will be needed to meet Colorado's future M&I water needs.

The Colorado River Cooperative Agreement

The Colorado River Cooperative Agreement is the product of 5 years of mediated negotiations. The geographic scope is from the Front Range, across the Continental Divide, to the western state line and involves 34 parties. The proposed agreement begins a long-term partnership between Denver Water and the West Slope. The agreement is really a framework for numerous actions by the parties to benefit water supply and the environment on both sides of the Continental Divide. Following are consumptive use benefits for the Colorado River Basin from the proposed agreement:

- Denver Water agrees to provide 375 acre-feet (AF) of water from its system for use by municipal water providers and ski areas in Grand County.
- Denver Water will provide 920 AF of Clinton Bypass Water on a year-round basis, subject to Grand County Water Users providing replacement water.
- Denver Water will allow the Grand County Mutual Ditch and Reservoir Company to move water acquired by means of the purchase of Vail Ditch shares through the Fraser River Collection System.
- Denver Water will not undertake any future water development activities without the prior approval of Grand County and the Colorado River District.
- Denver Water will contribute $11 million for projects such as wastewater treatment plant improvements, environmental enhancements, and local water and sewer projects.
- Denver Water will provide 250 AF of water without charge for use in districts and towns in Summit County.
- Denver Water will provide 1,493 AF of water to various Summit County water users and ski areas, subject to those entities providing adequate replacement water.
- Denver Water will not undertake any future water development activities without the prior approval of Summit County and the Colorado River District.
- Denver Water will pay $1.5 million for water supply, water quality, or water infrastructure projects benefiting the Grand Valley.
- Denver Water will pay $500,000 to offset additional operations and maintenance costs for water treatment plants in Garfield County to address the exercise of drought relaxation of the Shoshone Call.
- The parties will implement a "Shoshone Outage Protocol" during an outage of the Shoshone Power Plant to mitigate the potential adverse effects of the absence of the Shoshone Call. Denver Water, the Middle Park District, and the River District agree to operate their water collection and storage systems as if the senior Shoshone Power Plant right were in priority during specified times when the plant is not operational. The parties will cooperate to achieve permanent management of the flows of the Colorado River based on historical conditions and will work with the BOR to achieve operation of Green Mountain Reservoir based on the Outage Protocol.
- Denver Water will agree to cooperate in an investigation and potential acquisition of the Shoshone Power Plant by West Slope parties.
- The parties agree to not oppose the existing 2007 call relaxation agreement between Denver Water and Xcel Energy and to support renewal of the agreement. If the relaxation is made permanent, Denver Water will make 500 AF of its increased yield resulting from the relaxation available as a permanent source of blending water for the Water Infrastructure Supply Efficiency project. Recipients of the blending water would pay a system development charge into a special fund to be used for permanent preservation of the Shoshone Call flows. The time of the call relaxation can be extended in defined drought conditions.

Of particular importance will be the implementation of new projects and sources of water in the event that not all IPPs currently undergoing NEPA review receive permits for project construction from the jurisdictional federal agency (BOR or U.S. Army Corps of Engineers for most ongoing Environmental Impact Statement projects). The list of these projects includes high-yield regional projects such as Northern Integrated Supply Project, Windy Gap Firming Project, Southern Delivery System, the Moffat Collection System Project, Chatfield Reallocation, and others.

The significance of the yield that would be provided by IPPs currently or soon to be engaged in the NEPA process—particularly in the South Platte, Metro, and Arkansas Basins—is illustrated in **Figures 5-4** and **5-5**. For the medium growth scenario and assuming 100 percent IPP success rate, South Platte Basin and Metro IPPs in NEPA represent 115,000 AFY of potential yield, or about 40 percent of the total IPP yield for the combined basins. Likewise, NEPA IPPs in the Arkansas Basin total nearly 49,000 AFY, or roughly 51 percent of overall IPP yield for the medium growth scenario. Note that in Figures 5-5 and 5-6 the new demand values also include the replacement of nonrenewable groundwater.

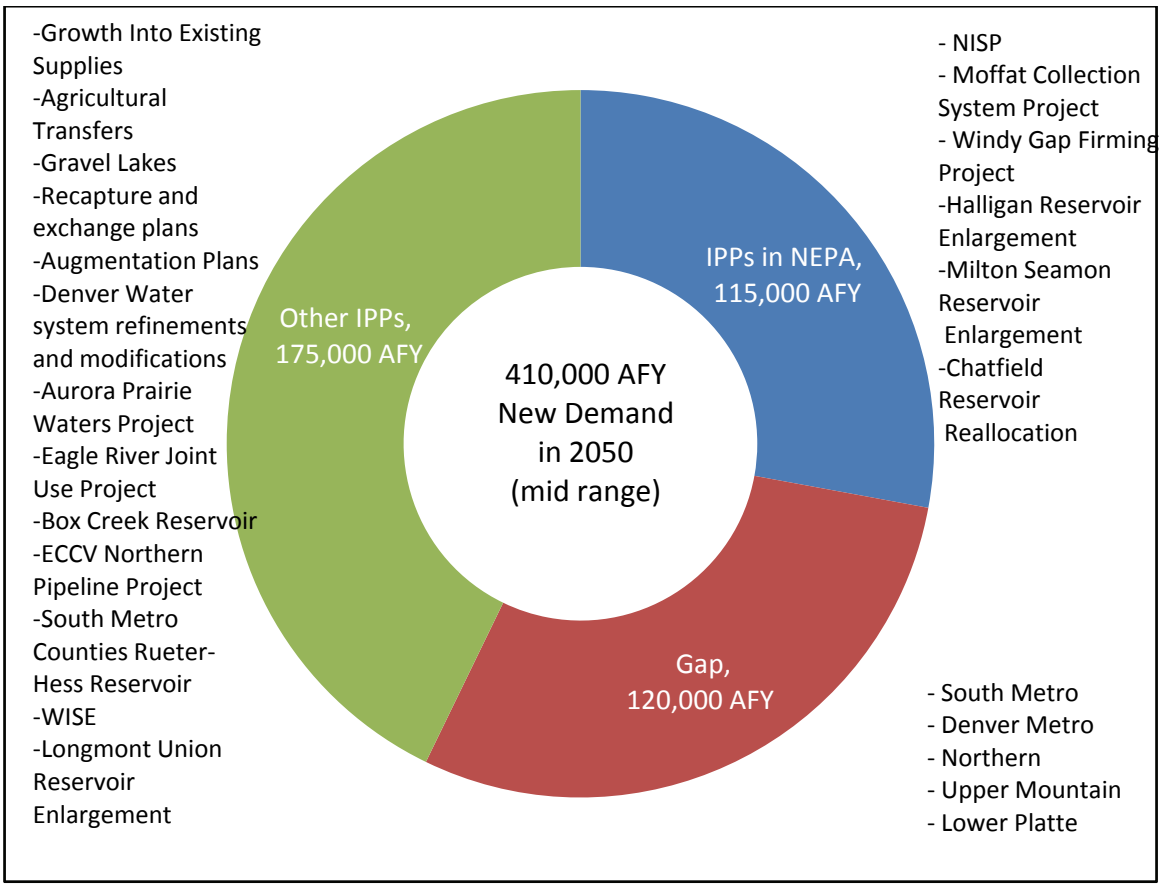

Figure 5-4 Potential Yield of NEPA Projects Relative to 2050 New Demands, Other IPPs, and Gap in South Platte and Metro Basins

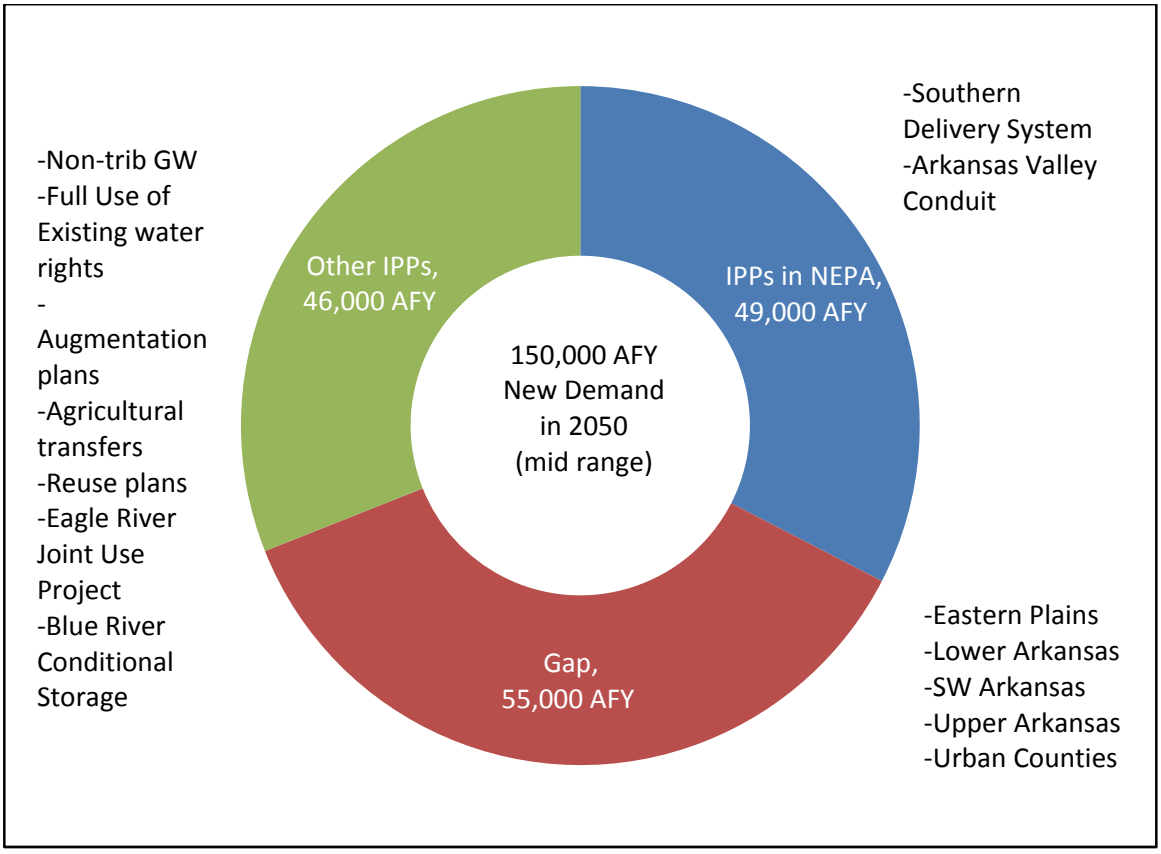

Figure 5-5 Potential Yield of NEPA Projects Relative to 2050 New Demands, Other IPPs, and Gap in Arkansas Basin

The following section provides additional results of the gap analysis for each basin roundtable area.

5.3.3.2 Colorado Basin

Table 5-5 provides a summary of increased M&I and SSI demands, the amount of yield provided by the IPPs, and the results of the gap calculations for each county in the Colorado Basin. The basin's existing M&I and SSI supply is 68,000 AFY and is assumed to remain constant through 2050; future demands and supplies will increase above this amount. After completing the necessary adjustments for the alternative and status quo IPP yield scenarios, the resulting gaps for the low, medium, and high scenarios are approximately 22,000 AFY, 33,000 AFY, and 48,000 AFY, respectively.

Under the low gap scenario (100 percent IPP success), the gap reaches 22,000 AFY in 2050. Similar development trends are observed for the medium gap scenario (90 percent IPP success), resulting in a gap of about 33,000 AFY by 2050. Under the high gap scenario in the Colorado Basin (90 percent IPP success), the gap is approximately 48,000 AFY in 2050. The information is shown graphically in **Figures 5-6 through 5-8.**

Table 5-5 Colorado Basin M&I and SSI Gaps in 2050

Region or County	Increase in M&I and SSI Demand (AFY)			Estimated Yield of Identified Projects and Processes (AFY)			Estimated Remaining M&I and SSI Gap after Identified Projects and Processes (AFY)		
				100% IPP Success Rate	Alternative IPP Success Rate (90%)	Status Quo IPP Success Rate (90%)	Gap at 100% IPP Success Rate	Gap at Alternative IPP Success Rate (90%)	Gap at Status Quo IPP Success Rate (90%)
	Low	Med	High	Low	Med	High	Low	Med	High
Eagle County	10,100	14,000	20,200	10,100	12,600	18,100	0	1,400	2,000
Garfield County	22,500	26,000	33,400	16,600	15,000	15,000	5,800	11,000	18,400
Grand County	4,100	5,200	6,700	2,700	2,900	2,900	1,400	2,300	3,900
Mesa County	14,100	17,500	24,300	3,900	6,700	12,800	10,100	10,900	11,600
Pitkin County	4,700	6,700	9,800	1,900	3,500	6,300	2,800	3,200	3,500
Summit County	9,000	12,100	16,800	6,900	8,300	8,300	2,000	3,800	8,500
Total[1]	**65,000**	**82,000**	**110,000**	**42,000**	**49,000**	**63,000**	**22,000**	**33,000**	**48,000**

[1] Aggregated basin total values rounded to two significant digits to reflect increased uncertainty at larger geographic scales.

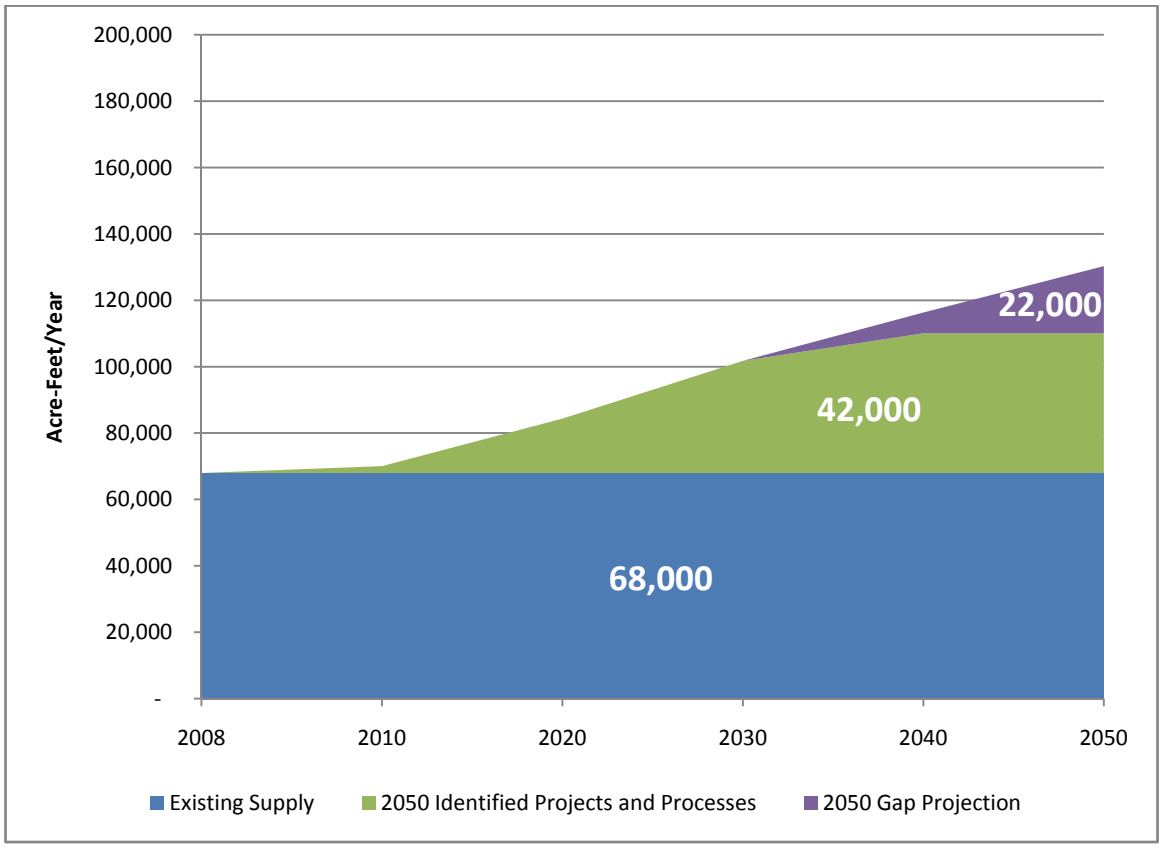

Figure 5-6 Colorado Basin M&I and SSI Gap Summary Low Scenario (IPPs at 100% Success Rate)

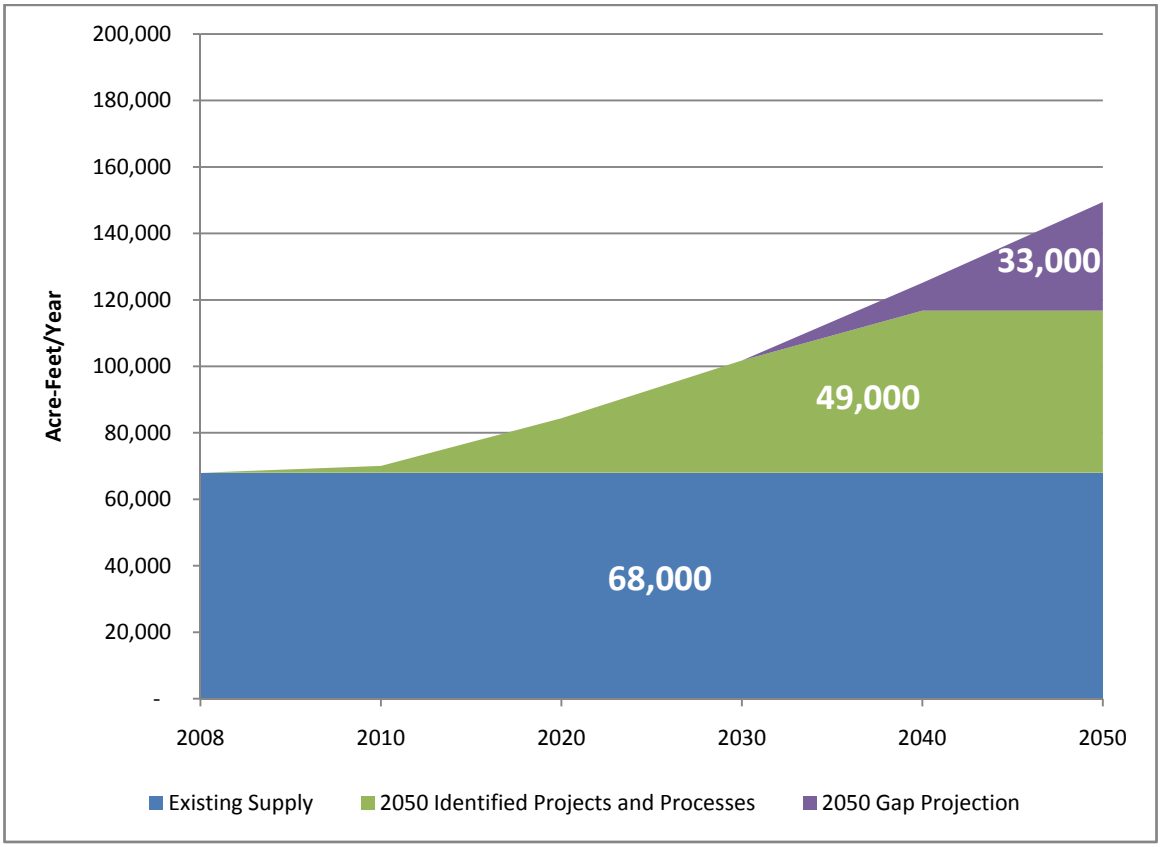

Figure 5-7 Colorado Basin M&I and SSI Gap Summary Medium Scenario (IPPs at 90% Success Rate)

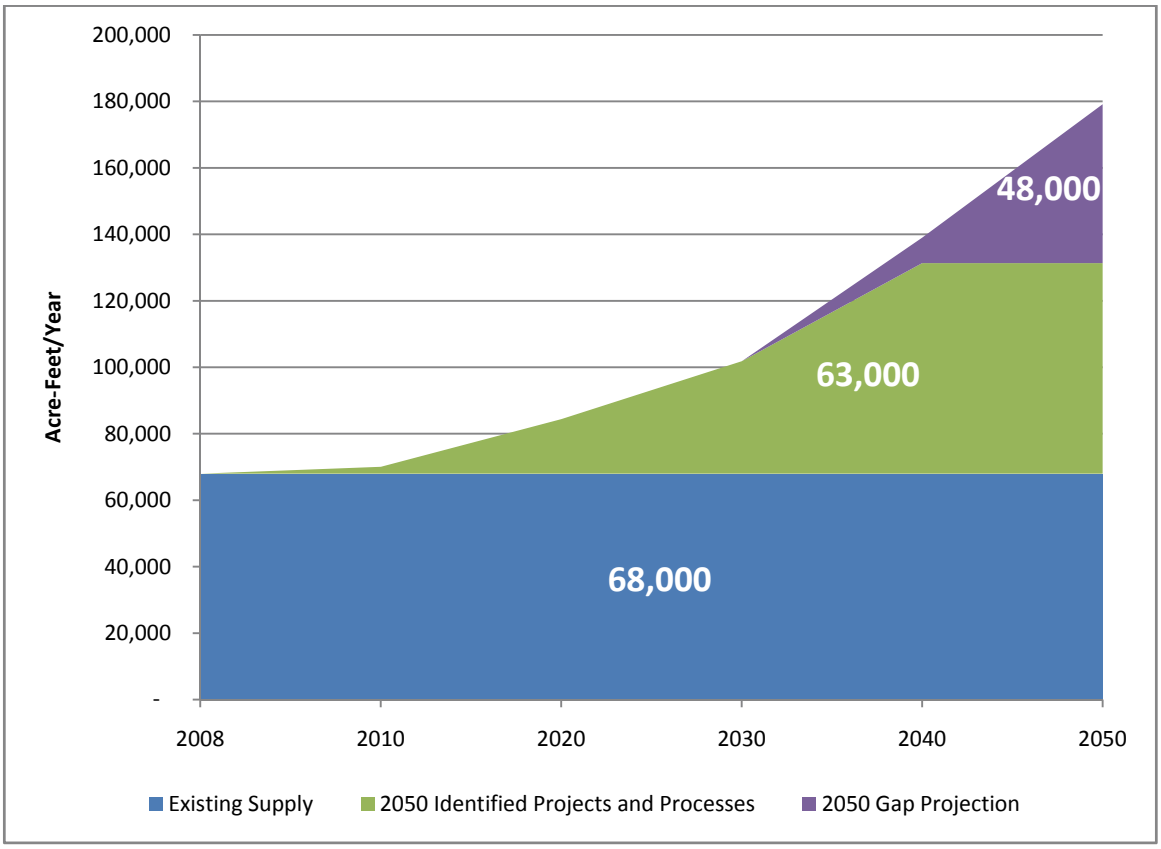

Figure 5-8 Colorado Basin M&I and SSI Gap Summary High Scenario (IPPs at 90% Success Rate)

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Section 6
Colorado Basin Water Availability

6.1 Water Availability Overview

Justice Gregory J. Hobbs of the Colorado Supreme Court has stated "The 21st Century is the era of limits made applicable to water decisionmaking. Due to natural western water scarcity, we are no longer developing a resource. Instead, we are learning how to share a developed resource." These words of wisdom should serve as guidance for all parties interested in Colorado water. The amount of water available for use within the state is finite.

The Statewide Water Supply Initiative (SWSI) 2010 analyzes Colorado's water availability based on recent work by the Colorado Water Conservation Board (CWCB) and the basin roundtables. SWSI 2010 finds that unappropriated water in the South Platte, Arkansas, and Rio Grande Basins is extremely limited, and reliance on nonrenewable, nontributary groundwater as a permanent water supply creates reliability and sustainability concerns, particularly along the Front Range. It also finds that Colorado River compact entitlements are not fully utilized and that water in the Colorado River system may be available to meet future needs. However, in order to develop new water supplies in the Colorado River system, projects and methods will be needed to manage the risks of additional development.

6.2 Methodology to Evaluate Surface Water Supply Availability

This section provides a summary of statewide surface water and groundwater availability. This update summarizes work to date completed by the CWCB and the basin roundtables through the development of their basinwide water needs assessments. A comprehensive analysis of water availability for each basin was completed in SWSI 1 and is only partially updated. Future SWSI updates will provide updated water availability analysis in each basin based on additional Colorado Decision Support System (CDSS) modeling tools.

In addition to the analysis of water availability in SWSI 1, the SWSI 2010 update specifically includes an updated analysis for the basins within the Colorado River system as part of the CWCB's Colorado River Water Availability Study (CRWAS), which is summarized here. Updated information is also included for the South Platte Basin based on results of analysis directly associated with the South Platte Basin Roundtable Task Order.

In another effort related to water availability, statewide drought planning has occurred through the preparation and implementation of the Colorado Drought Mitigation and Response Plan (DMRP). In 2010, the CWCB conducted a comprehensive revision of the DMRP. The updated plan provides a blueprint for how the state will monitor, mitigate, and respond to drought.

The potential effects of climate change are quantified in the CRWAS, and provided at various locations throughout the Colorado River basins. Reliable climate change analyses are not yet available for the other basins and are not included in this update.

6.3 Water Availability

The purpose of this section is to summarize the available data and studies indicating the level of water availability in each basin and the location of opportunities for further new water supply development.

Table 6-1 below summarizes the findings from SWSI 1 related to water supply development potential under interstate compacts and U.S. Supreme Court decrees. Colorado has entered into and is affected by nine interstate compacts, two equitable apportionment decrees, and one international treaty.

Table 6-1 Major Interstate Compacts, Decrees, and Endangered Species Programs by Basin

River Basin	Flows Legally Available under Compact or Decrees for Future Development	Interstate Compacts, Equitable Apportionment Decrees and Endangered Species Recovery Programs	Year of Compact or Decree
Arkansas		Arkansas River Compact	1948
		Kansas vs. Colorado	1995
Colorado	✓	Colorado River Compact	1922
		Upper Colorado River Basin Compact	1948
		Upper Colorado River Endangered Fish Recovery Program	—
		Rio Grande, Colorado, and Tijuana Treaty between United States and Mexico	1945
Dolores/San Juan/ San Miguel (Southwest)	✓	Colorado River Compact	1922
		La Plata River Compact	1922
		Upper Colorado River Basin Compact	1948
		Animas-La Plata Project Compact	1969
		San Juan River Basin Recovery Implementation Program	—
		Rio Grande, Colorado, and Tijuana Treaty between United States and Mexico	1945
Gunnison	✓	Colorado River Compact	1922
		Aspinall Unit Operations	—
		Upper Colorado River Basin Compact	1948
		Upper Colorado River Endangered Fish Recovery Program	—
		Rio Grande, Colorado, and Tijuana Treaty between United States and Mexico	1945
North Platte/ Laramie	✓	Nebraska vs. Wyoming	1945
		Wyoming vs. Colorado	1957
		Platte River Recovery Implementation Program	—

Table 6-1 Major Interstate Compacts, Decrees, and Endangered Species Programs by Basin, continued

River Basin	Flows Legally Available under Compact or Decrees for Future Development	Interstate Compacts, Equitable Apportionment Decrees and Endangered Species Recovery Programs	Year of Compact or Decree
Rio Grande		Rio Grande River Compact	1938
		Costilla Creek Compact (amended)	1963
		Rio Grande, Colorado, and Tijuana Treaty between United States and Mexico	1945
South Platte	✓	South Platte River Compact	1923
		Republican River Compact	1942
		Platte River Recovery Implementation Program	—
Yampa/White/Green	✓	Colorado River Compact	1922
		Upper Colorado River Basin Compact and Yampa River Portion	1948
		Upper Colorado River Endangered Fish Recovery Program	—
		Rio Grande, Colorado, and Tijuana Treaty between United States and Mexico	1945

These agreements establish how water is apportioned between Colorado and downstream states as well as between the United States and Mexico. Each agreement has a significant effect on the development of future water supplies in Colorado. Additional information about the compacts is provided in Section 1.4.

SWSI 1 found there are no reliable additional water supplies that can be developed in the Arkansas and Rio Grande Basins, except in very wet years. The North Platte Basin has the ability to increase both irrigated acres and some additional consumptive uses, consistent with the North Platte Decrees. The South Platte Basin has water that is legally and physically available for development in wet years, although unappropriated water is extremely limited.

Compact entitlements in the Colorado River Basins are not fully utilized and those basins (Colorado, Gunnison, Southwest, and Yampa-White) have water supplies that are legally and physically available for development given current patterns of water use.

CWCB's CRWAS analyzed water availability in the Colorado River Basins (Colorado, Gunnison, Southwest, Yampa, and White River Basins). Upon completion of the CRWAS Phase 1 study, an addendum to the SWSI 2010 report will be developed summarizing the results of the study for these basins.

The CRWAS Phase 1 Study is comprised of four interrelated components or steps:

1. Update and expand the state's water availability computer simulation tools based on input solicited from water users (consumptive and nonconsumptive) through the basin roundtables, the Interbasin Compact Committee, and other public forums.

2. Assess potential water availability using records of historical water supplies.

3. Use scientific analyses and datasets previously developed by others to estimate streamflows over the past several hundred years, which was done using annual growth of trees (especially as an indicator of transitions between wet and dry years and as an indicator of the potential lengths of dry and wet periods). This extended natural flow hydrology was used to assess remaining water availability as if today's water uses existed throughout the extended period.

4. Superimpose the effects of potential changes in precipitation and temperature from previously developed global climate models (GCMs, also known as General Circulation Models) to reflect hydrologic conditions that may exist in 2040 and 2070 if the greenhouse gas emissions occur as postulated in the various scenarios ("storylines") simulated by the GCMs.

CRWAS compared future supply and current demand to determine whether there is enough water to meet either current demands based on the "supply-and-demand equation:"

Future Supply – Current Demand = Water Available for Future Consumptive Use

CRWAS Phase 1 held the demand side of the water availability equation constant at current levels (adjusted for changes in irrigation water requirements) and considered three different conditions for the water supply side of the equation as follows.

6.3.1 Historical Hydrology

Traditionally, water supply agencies use recorded historical information on water supply as an indication of likely future conditions; the premise being that history tends to repeat itself. Many agencies in Colorado used streamflow records dating back to at least 1950 so they could consider the impacts of the 1950s multi-year drought on the reliability of their systems. CWCB developed natural flow hydrology back to 1909 in the Colorado River Basin in Colorado, but this required filling missing records or records for discontinued stream and weather gages with scientifically estimated values. For the purposes of CRWAS, a 56-year study period is used to represent historical hydrology (1950 through 2005). This period includes both very wet and very dry years, contains the most reliable historical data upon which to base comparisons of the effects of climate change, and uses information that Colorado River stakeholders can relate to through their own experiences. Historical hydrologic conditions are characterized by the record of natural flows at hundreds of points throughout the basin; basin-scale record of precipitation, temperature, and wind disaggregated to thousands of cells in a rectangular grid covering the entire Colorado River Basin; and a record of local weather recorded at 54 weather stations within Colorado.

Historical hydrologic conditions are characterized by the record of natural flows at hundreds of points throughout the basin

6.3.2 Paleohydrology

This approach extends historical records using information from more than 1,200 years of previously published tree-ring records. The CRWAS reviews alternative methods for correlating annual tree growth with streamflow and concludes that a "re-sequencing" approach best serves the needs of the study. This approach focuses on the probabilities of transitioning back and forth between wet and dry years. The lengths of the wet periods and dry periods have significant effects on water availability for future use, especially when combined with the effects of climate change. Development of 100 equally-probable 56-year-long flow traces test the effects of more severe droughts on water supply and management in Colorado and on the state's amount of water available for future consumptive use (CU) as potentially constrained by the compacts under various assumptions.

CRWAS reviews alternative methods for correlating annual tree growth with streamflow

6.3.3 Climate-Adjusted Hydrology

This approach assesses the magnitude of future water supply availability considering the effects of climate change scenarios. CRWAS reviews information from the climate projections that are available for the Colorado River Basin. Working with the Front Range Climate Change Vulnerability Study, CRWAS identified five projections for each of the 2040 and 2070 planning horizons (10 total). CWCB utilizes the state's Climate Change Technical Advisory Group, comprised of many federal, state, private scientists, water resource engineers, and managers to conduct a technical peer review of the approach and methods used in handling GCM data.

The Variable Infiltration Capacity model is used to translate changes in temperature and precipitation from the selected GCMs to changes in natural flows throughout the river basin. In Colorado, the potential climate-induced changes have been introduced into two models comprising the state's CDSS. First, "StateCU" is used to estimate CU of water by crops resulting from the generated higher temperatures and longer growing seasons. Second, "StateMod" is used to simulate the water management (for example, diversions, return flows, reservoir operations, and instream flows) that would result from changes in natural flows. Input of the basin roundtables during Phase I significantly enhanced the river operations of the models in the CDSS.

The CWCB is currently in the process of updating CRWAS based on comments received on the draft report. After Phase I of the study is completed, CWCB will issue an addendum to the SWSI 2010 report that summarizes the results of the study.

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Section 7
Colorado Basin Conclusions and Recommendations

7.1 Major Findings

- The Colorado Basin has 2,200 miles of streams with important attributes. Seventy-two percent have some type of existing project or method aimed at protecting those attributes.
- The Colorado Basin's municipal and industrial (M&I) sector will need an additional 65,000 to 110,000 acre-feet (AF) by 2050 and has a gap of 22,000 to 48,000 AF.
- Agriculture is important to the Colorado Basin, but status quo is showing that the basin's irrigated acres will be reduced between 19 to 29 percent. Much of this is due to the fact that municipalities are growing onto agricultural lands.
- If the oil shale industry becomes productive, most of the water needs can be met in the White River Basin, but the Colorado Basin will likely support the majority of the increase in population stemming from oil shale jobs.
- Additional storage and infrastructure will be needed to meet the Colorado Basin's M&I needs.

7.2 Water Supply Reserve Account Grant Summaries

Following are summaries of the Water Supply Reserve Account Grants (WSRA) that the Colorado Basin Roundtable has funded to date.

Energy Development Water Needs Assessment

APPLICANT: City of Grand Junction

APPROVED: March 2007

STATUS: Phase 1 - Draft Report Complete; Phase 2 - In Progress

WSRA FUNDS: $300,000 (Statewide Account - joint application with Yampa-White Basin - $150,000 from each basin's allocation)

MATCHING FUNDS: None

DESCRIPTION:
The Phase I study estimates the water demands needed to support the extraction and production of energy in four sectors in northwest Colorado including natural gas, coal, uranium, and oil shale. The Colorado and Yampa-White Basin Roundtables are seeking to use data and information from this study, in conjunction with the Statewide Water Supply Initiative (SWSI) and other appropriate sources, to assist with the development of a basinwide consumptive and nonconsumptive water supply needs assessment. This study provides data and information necessary to plan for meeting those needs and using unappropriated waters where suitable. The study concludes that oil shale development, along with the associated power production, could require tremendous amounts of water, up to 378,300 AF annually. Phase 2 will address potential sources of water supply and include new water projects, if needed, to meet the water demands forecasted in Phase 1. Phase 2 will also quantify the net consumptive use of water supplies contemplated for use in the energy sectors, including addressing the timing, location, and magnitude of return flows resulting from water use attributable to energy development.

Enlargement of Eagle Park Reservoir

APPLICANT: Eagle Park Reservoir Company

APPROVED: March 2007

STATUS: Complete

WSRA FUNDS: $250,000 (Statewide Account)

MATCHING FUNDS: $118,707

DESCRIPTION:
The reservoir enlargement will provide additional water during late summer, fall, and winter months to meet growing water supply needs in Eagle County. The Eagle Park Reservoir is located in Eagle County in the headwaters of the East Fork of the Eagle River near the Climax Mine. The reservoir is an off channel reservoir that is tributary to the East Fork of the Eagle River. The reservoir is located on property formerly owned by the Climax Molybdenum Company at the Climax Mine and was originally used to store mine tailings. As part of the mine reclamation process, Climax completed the removal of tailings deposits from the reservoir in 1996 and converted the facility to a fresh water storage reservoir. The Eagle Park Reservoir Company purchased the Eagle Park Reservoir and associated real property and water rights, located in Eagle County, Colorado at the Climax Mine, in 1998 for irrigation, municipal, industrial, and environmental water supply purposes. The Eagle Park Reservoir is operated to replace out-of-priority water diversions and depletions caused by downstream municipal water supply systems that serve Vail, Avon, and other communities in Eagle County and by snowmaking at the Vail and Beaver Creek Ski Areas. The project will raise the elevation of the existing spillway by 2.5 feet to provide an additional 153.3 AF of storage capacity.

Roaring Fork Watershed Assessment Phase I

APPLICANT: Ruedi Water and Power Authority

APPROVED: March 2007

STATUS: Complete

WSRA FUNDS: $40,000 (Basin Account)

MATCHING FUNDS: $75,000

DESCRIPTION:
The watershed plan provides a comprehensive review of the 51 identified plans and studies conducted in the Roaring Fork Watershed. This helps determine the connections between different aspects of local water resources and identify key data gaps that affect the ability to make informed decisions. The watershed plan is intended to provide a comprehensive picture of overall demand for water in the valley and projected current and future water supplies. Other major elements of the plan include community outreach, water issues discussion, identification of acute threats, and recommended immediate actions and projects.

Upper Colorado Endangered Fish Recovery Alternatives Analysis (10825)

APPLICANT: Colorado River Water Conservation District

APPROVED: March 2007

STATUS: Draft Report Complete; Gathering Public Comments

WSRA FUNDS: $200,000 (Statewide Account)

MATCHING FUNDS: None

DESCRIPTION:
The Upper Colorado River Endangered Fish Recovery Program was developed to aid the recovery of four endangered species of fish in the Colorado River. A Programmatic Biological Opinion requires Colorado to provide 10,825 AF of water per year to a 15-mile reach near Palisade, Colorado during low flow years in summer and fall months. This commitment is equally divided between East and West Slope water users. Currently, the 10825 water is provided on a temporary basis by Denver Water (from Williams Fork Reservoir) and the Colorado River Water Conservation District (from Wolford Mountain Reservoir). Permanent agreements for a water source are required by December of 2009. After review of 25 alternatives, providers identified a preferred alternative that would release 5,425 AF of water from Ruedi Reservoir each year. An additional 5,400 AF would be released from Granby Reservoir during the summer to optimize habitat in the upper Colorado River. Also, excess capacity in Green Mountain Reservoir would be used to re-time the Granby's releases as necessary. Both East Slope and West Slope water providers fully support this alternative.

Acquisition of Vail Ditch by Grand County Interests

APPLICANT: Grand County

APPROVED: March 2007

STATUS: Complete

WSRA FUNDS: $1,500,000 (Statewide Account)

MATCHING FUNDS: Approximately $1,500,000

DESCRIPTION:
This project provides new water supplies to the headwaters of the Fraser River near Winter Park to address critical consumptive and nonconsumptive water needs. Rapid growth in the area necessitates water supply certainty. Denver Water and the Municipal Subdistrict of the Northern Colorado Water Conservancy District seek to develop supplies from their respective Moffat and Windy Gap transmountain water. As a result stream flows will more often approach critically low levels. The Vail Ditch water supplies are strategically located to convey water through Denver's Moffat Tunnel. With the use of Denver's system these supplies can be moved to the uppermost Fraser River benefiting stream flow and human uses from Winter Park on downstream.

The project purchases shares of the Grand County Irrigated Land Company (GCILC) from a willing seller. The project also initiates a process with GCILC to determine potential impacts, conduct a Granby Mesa Hydrogeology Evaluation to characterize surface water and groundwater interactions, and determine cooperative solutions for Grand County's and Denver's water supply interests in the Fraser River.

Bull Creek Reservoir No. 5 Spillway Adequacy Analysis

APPLICANT: Bull Creek Reservoir Canal & Power Company

APPROVED: September 2007

STATUS: Complete

WSRA FUNDS: $50,000 (Basin Account)

MATCHING FUNDS: None

DESCRIPTION:
This project consists of engineering work related to a dam break hydrology and spillway sizing analysis of Reservoir No. 5. This is needed to maintain the low hazard classification of two of the company's upstream reservoirs—Reservoir No. 1 and No. 2. A feasibility study performed in May 2006 identified excessive environmental and financial costs associated with upgrading Reservoirs No. 1 and No. 2 to meet State Engineer Office (SEO) specifications. The spillway analysis of Reservoir No. 5 will likely indicate the need for an enlarged spillway. The cost of constructing a new spillway for Reservoir No. 5 is estimated to be significantly cheaper than rehabilitating the upstream reservoirs. Without improvements to upstream reservoirs or enlarging the spillway, a fill restriction will be executed by the SEO due to safety concerns. The grant will also include funding for 404 permitting, wetlands delineation, biological evaluations, a management indicator species study, and processing a Special Use Permit application for the construction activity.

Grand County Stream Flow Management Plan, Phase 3

APPLICANT: Ground County

APPROVED: May 2008

STATUS: In Progress

WSRA FUNDS: $100,000 (Basin Account)

MATCHING FUNDS: $296,546

DESCRIPTION:
This report presents scientifically-based recommendations of environmental stream flow, to support nonconsumptive water uses. The recommended flows represent estimates that optimize conditions for a given reach and specific use. Ultimately the goal of this and subsequent phases is to develop and implement a Stream Management Plan that is protective of aquatic habitat and other nonconsumptive water use, while retaining flexibility for current and future water provider operations. It is recognized that not all recommended flows for all uses on all reaches can be achieved at all times. The Phase 3 study goal is to perform stream assessments and analysis for restoration opportunities and the development of a master plan for implementing restoration projects along the Fraser and the Upper Colorado River. This phase will also include continued coordination on development of alternative flow operations that might help achieve recommended flows developed in Phase 2.

Old Dillon Reservoir Enlargement

APPLICANT: Summit County

APPROVED: March 2008

STATUS: Complete

WSRA FUNDS: $100,000 (Basin Account)

MATCHING FUNDS: $49,360

DESCRIPTION:
Dillon and Silverthorne have limited existing raw water storage, which makes the development of this reservoir enlargement project critical to protect the towns from the possibility of drought and potential pollution in Straight Creek and Blue River watersheds. This reservoir will also provide security and flexibility in the use of the parties' rights in the Clinton Gulch Reservoir and Dillon Reservoir. 96, 20, and 150 AF are planned on being stored by the Town of Dillon, Town of Silverthorne, and Summit County, respectively. The work being undertaken with this grant is to help fund the National Environmental Policy Act and permitting components of the work and also to fund preliminary engineering work including a wildland hydrology study, probable maximum flood study, and a dam break analysis.

Fraser River Settling Pond

APPLICANT: East Grand Water Quality Board

APPROVED: March 2008

STATUS: In Progress

WSRA FUNDS: $187,900 ($60,000 - Basin Account; $127,900 - Statewide Account)

MATCHING FUNDS: $60,000

DESCRIPTION:
This structural water project makes improvements to a previously designed sediment pond with the same goal: to capture sand from current and historical maintenance of Berthoud Pass (estimated at nearly 5,000 tons), as well as natural erosion of the mountainside, before the sediment pollutes the Fraser River. Improvements to the pond design will include creating a D-shaped berm structure to slow the velocity of the river in the pond area to allow for sediment deposition before the water flows through Denver Water's diversion dam. In the fall, this pond will be drained for maintenance via improvements included in the project plan to a previously installed diversion pipe, and sediments will be removed to a Grand County gravel pit.

Missouri Heights Aquifer Study

APPLICANT: Basalt Water Conservancy District

APPROVED: September 2007

STATUS: In Progress

WSRA FUNDS: $25,000 (Basin Account)

MATCHING FUNDS: $25,000

DESCRIPTION:
This study is intended to address the limitations of a previous study, providing a more detailed understanding of the influences of development on the Missouri Heights aquifer. In order to accomplish this, the district plans to establish six monitoring well sites equipped with continuous recording devices. Additionally, the district will install a remote precipitation gage on Missouri Heights. Data will be collected at these sites for a period of 5 years. At the end of the 5-year study period the data will be analyzed and summarized in a report by Resource Engineering, Inc. This report will provide a valuable tool for a number of public and private entities in the Roaring Fork Valley. Specifically, the report will accomplish the following: 1) help the district assess its ability to adequately augment water allotment contract holders on Missouri Heights; 2) assist the Division of Water Resources in administering and protecting vested water rights on or influenced by Missouri Heights, including Colorado Water Conservation Board's instream flow water rights on the Roaring Fork River; and 3) facilitate planning for future development and water use on Missouri Heights.

Roaring Fork Watershed Assessment Phase 2

APPLICANT: Ruedi Water and Power Authority

APPROVED: May 2008

STATUS: In Progress

WSRA FUNDS: $40,000 (Basin Account)

MATCHING FUNDS: $56,000

DESCRIPTION:
Phase II will include a set of goals and objectives to be developed through citizen input and in consultation with local governments and water massagers. The project will yield a set of findings on critical issues raised by the data developed in the Roaring Fork Watershed Plan and Phase I of the watershed assessment. Although the exact nature of those findings are not yet determined, they might address such issues as: 1) the potential impact of increased transbasin diversions on local water quantity and quality; 2) the projected impacts of residential and commercial growth and changing land uses on local water resources; 3) local wildlife habitat populations or ecosystem components that might be threatened due to changing water uses; 4) use trends in areas of domestic water use, agriculture, recreation and instream uses, commercial and industrial uses, and conservation; and 5) trends in water quality. In addition the plan will include recommendations for future water management policies and activities to be submitted for the consideration of local water managers and governments.

Feasibility and Design Assessment of Off-Channel Reservoir Sites in the Crystal River Watershed

APPLICANT: West Divide Water Conservancy District

APPROVED: September 2008

STATUS: Complete

WSRA FUNDS: $40,000 (Basin Account)

MATCHING FUNDS: $15,000

DESCRIPTION:
The feasibility assessment and the preliminary design of three small off-channel reservoir sites located within the Crystal River watershed were cooperatively developed by West Divide and the property owners to study how to develop in-basin augmentation water supplies, provide supplemental late season irrigation water, and provide water for instream flow maintenance of the Crystal River. The project helps address an identified project and process from Statewide Water Supply Initiative augmentation issues in the Crystal River drainage. The Crystal River water supplies are insufficient to satisfy irrigation residential and instream flow demands. The lower portion of the river is regularly dry during late summer. Many existing residential water users located in unincorporated areas do not have a legal water supply. West Divide currently provides augmentation water to about 20 existing water users in the Crystal River watershed extending from locations near the Town of Carbondale to above the Town of Redstone. In 2004 the Division of Water Resources administratively determined that the Crystal River portion of the district regional augmentation program service area could no longer be operated without injury to senior water rights. In addition it is currently very difficult for other rural residents in the area to obtain well permits or a legal water supply.

Battlement Reservoir No. 3 Dam Reconstruction to Enhance Recreational and Environmental Opportunities

APPLICANT: Grand Valley Anglers Chapter of Trout Unlimited and Federation of Fly Fishers

APPROVED: November 2008

STATUS: Contracting

WSRA FUNDS: $80,000 (Basin Account)

MATCHING FUNDS: $320,000

DESCRIPTION:
The proposed water activity will enhance recreational and environmental opportunities with dam reconstruction of Battlement Reservoir No. 3. The Battlement Reservoirs are a chain of seven historic reservoirs located in a montaine setting at 10,000 feet elevation in the White River National Forest, 7 miles south of Battlement Mesa, Colorado. A lack of reservoir maintenance due to the inaccessibility of the site to motorized equipment resulted in an environmental benefit for the reservoir's highly productive fisheries. The Battlement Reservoirs became very popular with anglers that desired a pristine back-country experience. Battlement Reservoir No. 3, the largest reservoir (408.67 AF) breached during spring run-off in 1983. This breach resulted in major damage to the Battlement Creek channel as well as county roads downstream of the reservoirs. The community supported the use of the Battlement Reservoirs, so a process to restore the reservoir complex as a viable fishery began. Reconstruction of Battlement Reservoir No. 3 will include: 1) removal of the nonworking outlet structure; 2) construction of a permanent hardened spillway that will maintain a constant water level in the reservoir; 3) outsloping the downstream slope of the dam; and 4) revegetation of disturbed areas. The dam will be reconstructed to meet current dam safety standards.

Colorado Basin Nonconsumptive Needs Quantification

APPLICANT: Northwest Colorado Council of Governments

APPROVED: March 2009

STATUS: In Progress

WSRA FUNDS: $315,171 (Basin Account)

MATCHING FUNDS: $25,000

DESCRIPTION:
The study will conduct a basinwide modeling approach using the Watershed Flow Evaluation Tool (WFET) paired with site-specific quantification, which will be used to verify the model. The site-specific quantification of instream flow needs for the Colorado River will be between Kremmling, Colorado and No Name, Colorado. The WFET will be completed for the entire Colorado River Basin to focus future site-specific and water management efforts. This study will assist the Colorado Basin Roundtable in assessing its nonconsumptive needs by quantifying flows within the basin. In addition, the site-specific work closely ties to the development of Wild and Scenic alternatives on the mainstem of the Colorado River. The study will provide enough data that nonconsumptive flow quantifications can be incorporated into Phase II of the Colorado River Water Availability Study. An important component is outreach to water suppliers.

Solicitation of Stakeholder Input and Advice through Publication of a Colorado River Basin Edition of Headwaters Magazine

APPLICANT: Colorado Foundation for Water Education

APPROVED: September 2010

STATUS: In Progress

WSRA FUNDS: $25,000 (Basin Account)

MATCHING FUNDS: $18,211

DESCRIPTION:
This project seeks to educate roundtable stakeholders in the Colorado Basin about the basins' geography, water supply and environmental challenges, water management agencies, and different user groups through a Headwaters publication. The issue will help the roundtable achieve their goal of communicating with basin stakeholders to better solicit their input for needs assessments and project planning. Headwaters Magazine is the foundation's most widely available and well-known educational resource. The Foundation distributes 7,000 copies to residents of Colorado and the West. Once a year, the magazine features a river basin in Colorado and discusses in detail the challenges the basin faces, the agencies and people responsible for managing water resource affiliated issues, and the many success stories already accomplished.

Grand River Ditch Pipeline

APPLICANT: Grand River Ditch Company

APPROVED: September 2010

STATUS: Contracting

WSRA FUNDS: $25,000 (Basin Account)

MATCHING FUNDS: Over $300,000

DESCRIPTION:
Approximately 60 feet of a retaining wall that protects the Grand River Ditch collapsed due to an extended high-water season in the spring runoff period. The wall has been in place for over 100 years. The river runs very close to the ditch bank on the north side of the river and is at risk of failure as the river moves ever closer and the ditch seeps and slides into the river. The proposal is to pipe the damaged section, riprap, and install rock jetties to divert some of the energy away from the proposed pipe. The pipeline will prevent ditch seepage and saturation of the bank between the ditch and the river. The project consists of a concrete water control structure, about 1,400 feet of two 48-inch pipes, and related rock protection of both the pipe and structure. Without controlling the seepage from the ditch the bank will saturate having the potential to repeat the damage with debris and rocks sliding back into the river.

Flathead LEDE Ditch and Reservoir Reconstruction Project

APPLICANT: Town of Gypsum

APPROVED: September 2010

STATUS: Contracting

WSRA FUNDS: $225,000 ($50,000 - Basin Account and $175,000 - Statewide Account)

MATCHING FUNDS: Over $610,000

DESCRIPTION:
The Town of Gypsum owns the LEDE Ditch and LEDE Reservoir, which is located in the headwaters of Gypsum Creek, south of Gypsum. The original ditch and reservoir water rights are decreed absolute for irrigation uses up to 947 AF of storage. The existing LEDE Reservoir capacity is 431 AF. Gypsum seeks to increase capacity to accommodate continued agricultural irrigation, and for future water supplies to Gypsum Creek and the town. Further, the ditch and reservoir require upgrades for aging facilities and to ensure compliance with state dam safety regulations, which were updated in 2007.

Small Acreage Irrigation Audit Program – Grand Valley

APPLICANT: Mesa Conservation District

APPROVED: March 2011

STATUS: Contracting

WSRA FUNDS: $18,273

MATCHING FUNDS: $8,000

DESCRIPTION:
The applicant addresses management among small acreage owners in Grand Valley. Many larger commercial farms in the valley have been subdivided in the last couple decades into plots that are 40 acres or less. Many of the new irrigators who own these properties are not familiar with irrigation, causing water ponding in fields that both wastes water and is the primary cause of mosquito outbreaks. The audit program seeks to help small acreage irrigators reduce or eliminate wasteful use of water.

7.3 Recommendations

Following are the Colorado Basin Roundtable's recommendations for future consideration by the basin roundtable:

- Meet with South Platte and Metro Roundtables to discuss joint efforts in helping solve the water supply gap.
- Move forward to determine ways to fill nonconsumptive and consumptive gaps.
- Support methods of finding cooperative agreements between parties in solving Colorado's future water challenges.
- Support the instream flow filing on Colorado River in conjunction with the Wild and Scenic alternatives process
- Support the 10825 alternative out of Granby and Green Mountain exchange to be retimed with fish
- Support success of Shoshone protocol

- Support four legs of stool by building a statewide portfolio
- Further investigate the findings and methodologies of the Filling the Gap report.
- Support in-basin consumptive and nonconsumptive identified projects and processes
- Support the Interbasin Compact Committee (IBCC) conservation recommendations (see details in IBCC report). These are summarized below:
  - Develop unified statewide messaging about water and water conservation that is consistent, sustained, and simple.
  - Adoption of indoor plumbing codes that require water efficiency standards that meet or exceed the U.S. Environmental Protection Agency's (EPA) WaterSense fixture and appliance specification for all new residential and commercial construction and renovation that requires building permits.
  - An executive order for all state agencies to reduce their water demand.
  - Find ways to support water providers with funding and other assistance in pursuing the best available technologies and practices to minimize water loss in conveyance, storage, treatment, and distribution and to design consumers' water bills so that cost, consumption, and rates are clearly displayed.
  - Adoption of water efficiency standards that meet or exceed EPA's WaterSense product and certification specification in all new landscaping plans and projects requiring supplemental irrigation.
- Support additional reuse and conservation efforts (e.g., tiered rate structures and a reduction of bluegrass).
- Agriculture is important to Colorado, and the Colorado Basin Roundtable wants to explore further ways to limit the in-basin M&I impact on agricultural by investigating alternative transfer methods and concepts in more detail.
- Support risk management strategies, including water banks and storage.
- Utilize the WFET to identify specific nonconsumptive projects and needs.
- Move forward in a cooperative manner to solve the in-basin gap and solutions for the state. The Colorado River Cooperative Agreement is a good example of how to move forward with benefits to all parties. If one or more stream is going to be developed for a new water supply project that involves a transbasin diversion from the West Slope to the Front Range, the Colorado Basin should be involved in crafting that project along with additional in-basin projects.
- The Colorado Roundtable believes it's within its authority to investigate statutory solutions, and will continue to investigate these options.
- Support and proceed with more roundtable and IBCC efforts to education and engage the public.
- Support a philosophy when building a project in priority:
  1. Environment
  2. Neighbors / Cooperation w/ public
  3. Project

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