

Moffat Collection System Project

Fish and Wildlife Enhancement Plan

Prepared for:
The Colorado Wildlife Commission
In accordance with CRS 37-60-122.2

Prepared by:
Denver Water

In Partnership With:
Municipal Subdistrict,
Northern Colorado Water Conservancy District

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1.0 INTRODUCTION

1.1 Enhancement Project Overview

The City and County of Denver, acting by and through its Board of Water Commissioners (Denver Water) is proposing to construct the Moffat Collection System Project (Moffat Project), a project designed to provide 18,000 acre-feet (AF) per year of new water supply to Denver Water's customers. Denver Water proposes to enlarge its existing 42,000-AF Gross Reservoir, which is located in Boulder County, Colorado approximately 35 miles northwest of Denver and 6 miles southwest of the city of Boulder. Gross Dam would be raised 125 feet to provide an additional 72,000 AF of reservoir storage.

Pursuant to CRS 37-60-122.2(1), Denver Water and the Municipal Subdistrict, Northern Colorado Water Conservancy District, acting by and through the Windy Gap Firing Project (WGFP) Water Activity Enterprise (Subdistrict) have agreed to participate with the Colorado Department of Natural Resources (DNR) and Colorado Division of Wildlife (CDOW) in concurrent development of Fish and Wildlife Mitigation Plans (FWMPs) for the Subdistrict's WGFP and Denver Water's Moffat Project. In addition to the concurrent FWMPs, Denver Water and the Subdistrict have decided to submit to the CDOW enhancement plans to improve existing fish and wildlife resources. These Enhancement Plans are submitted pursuant to regulations implementing CRS 37-60-122.2(2) and are intended to enhance fish and wildlife resources over and above the levels existing without the Moffat Project and WGFP. Denver Water and the Subdistrict are submitting their Enhancement Plans simultaneously with their FWMPs.

Denver Water is also providing the Wildlife Commission with a copy of the proposed "Learning by Doing" (LBD) Cooperative Effort Intergovernmental Agreement (IGA), which was developed as part of the proposed mediation agreement between the West Slope entities and Denver Water. In the mediation agreement, Denver Water has committed to provide money for habitat improvements, water for environmental flows, and considerable system flexibility to provide flushing flows, all directed towards enhancing the current stream conditions and aquatic habitat in Grand County. The LBD effort, along with these mediation commitments, can provide considerable additional benefits to fish and wildlife resources.

1.2 Fish and Wildlife Enhancement Plan Stakeholders

Denver Water has been consulting and conferring with a broad range of federal and state agencies, as well as local governments and environmental groups, to solicit input on desired enhancements to existing fish and wildlife resources. These entities include:

- Governmental organizations: CDOW, Northern Water Conservancy District, Grand County, and Town of Hot Sulphur Springs
- Non-governmental organizations: Trout Unlimited and landowners along the upper Colorado River and in the Fraser River Basin

Although the CRS 37-60-122.2 procedures do not specify public involvement requirements, Denver Water and the Subdistrict acknowledge the Colorado Wildlife

Commission's desire to provide ample opportunity for public participation. To date, the Wildlife Commission has provided the following opportunities for the public to provide mitigation and enhancement suggestions:

- Stakeholder Workshops, January 24-25, 2011, Winter Park – CDOW solicited input on options for fixing the upper Colorado River between Windy Gap and the Kemp-Breeze State Wildlife Area to ensure a functioning river that supports fish and wildlife resources given anticipated future flows.
- Public Comment Period on Draft Enhancement and Mitigation Plans, Feb. 10-24, 2011 – CDOW invited public review and comment on the draft plans. The input was reviewed by CDOW, Denver Water and the Subdistrict while preparing the April 7th plans.
- Wildlife Commission Meeting, March 10, 2011 – Members of the public provided comments on the draft plans and review process.

1.3 Concurrent and Related Activities

Windy Gap Firming Project

The Windy Gap Firming Project (WGFP) is a proposed water supply project that would provide more reliable water deliveries to Front Range and West Slope communities and industries. The Subdistrict is seeking to construct the project on behalf of the 13 WGFP Participants. Project Participants include the City and County of Broomfield, the towns of Erie and Superior, the cities of Evans, Fort Lupton, Greeley, Lafayette, Longmont, Louisville, Loveland, Little Thompson Water District, Central Weld County Water District, and the Platte River Power Authority.

The proposed WGFP is to add water storage and related facilities to the existing Windy Gap operations capable of delivering a firm annual yield of about 30,000 AF to Project Participants. The Subdistrict's Proposed Action is the construction of Chimney Hollow Reservoir to store Windy Gap Project water. The WGFP Draft EIS was issued by the U.S. Bureau of Reclamation (Bureau) in 2008.

The Moffat Project would increase diversions from the Fraser River Basin upstream of the Windy Gap Project diversion site on the Colorado River and would affect the availability of water for the WGFP. Diversions for the WGFP and Moffat Project would result in changes to flows in the Colorado River below the Windy Gap dam. Denver Water and the Subdistrict have agreed to cooperate with each other and with the DNR and CDOW in concurrent development of the mitigation plans required under CRS 37-60-122.2 for the two projects. They have jointly developed stream temperature monitoring stations as mitigation (refer to the Moffat Project FWMP). Additionally, Denver Water and the Subdistrict have proposed enhancements with significant resources and funding to improve current conditions in the river.

2.0 ENHANCEMENTS

2.1 Upper Colorado River Habitat Project

The Upper Colorado River Habitat Project (Habitat Project) was designed in coordination with the Subdistrict to address concerns raised by CDOW and other stakeholders regarding the current conditions of the aquatic ecosystem in the Colorado River downstream of Windy Gap. CDOW studies have identified a decline in populations of *Pteronarcys californica* (giant stonefly), which, historically, has been a major source of food for trout in the Colorado River as well as other species of stoneflies and mayflies. Populations of the mottled sculpin (*Cottus bairdi*), a native fish that is also an important food source for trout and shares habitat with the *Pteronarcys*, have also declined. CDOW believes that riffle areas below the Windy Gap Reservoir have been altered by changes in flow regime, water depletions, sedimentation, and armoring of the channel bed. Trout populations between Windy Gap and Kremmling have declined. CDOW has expressed a desire to return the river to a more functional system considering current and future hydrology.

The goal of the Habitat Project is to design and implement a stream restoration program to improve the existing aquatic environment from the Windy Gap Diversion to the lower terminus of the Kemp-Breeze State Wildlife Area (Segment). Refer to Figure 1. The intent is for Denver Water and the Subdistrict to join with the CDOW, along with other stakeholders, in a cooperative effort to identify and address desired improvements to the stream environment.

Resources for the Project

- A. Funds Provided by Denver Water. To implement the Habitat Project, Denver Water will provide \$1 million.
- B. Funds Provided by Subdistrict. To implement the Habitat Project, the Subdistrict will provide \$2.5 million.
- C. Possible Funds Provided by Learning by Doing. Denver Water and the Subdistrict will participate in the LBD Cooperative Effort, which is described in Section 2.2. In the LBD Cooperative Effort, Denver Water has committed money for habitat improvements, water for environmental flows, and considerable system flexibility to provide flushing flows, all directed towards enhancing the aquatic environment in Grand County (refer to Appendix A for details). Denver Water and the Subdistrict, as two members of the six-member Management Committee, will work with the other members of the committee to dedicate an additional \$1 million (from the funds committed to LBD by Denver Water) to the Habitat Project, in addition to the amounts committed by Denver Water and the Subdistrict in paragraphs A and B above.
- D. Other Resources. If the Habitat Project participants desire additional resources beyond the \$3.5 million described in A and B above, the project participants will work with other stakeholders and granting agencies to seek other sources of funding. In addition, Denver Water and the Subdistrict will

contribute in-kind resources such as labor, equipment, and materials as practicable, and where it will not affect operation or maintenance of either entity's existing projects, to help maximize the value of funds provided in paragraphs A, B, and C above. In addition, CDOW has indicated a willingness to provide in-house expertise and resources for stream restoration design.

- E. Future Funding. The Subdistrict and Denver Water will contribute \$500,000 each for a total of \$1 million to a fund to be used for adaptive management in the Habitat Project segment. Adaptive Management in this case means that the \$1 million will be available to adjust elements of the stream restoration efforts that are not functioning as designed.

Use of Funds. The public funds described above will be used for the Habitat Project to restore the Segment on public land. However, the public stream reaches are interrupted by reaches of private land. The effectiveness of habitat restoration work and overall stream health will be compromised if there is not some degree of stream enhancement continuity for the entire Segment. While, preference will be given to work on public lands, public funds may be used for stream restoration on private land to provide continuity and prevent harm to the Habitat Project as a whole, or where a conservation easement is in place that allows public access, and/or through a program of matching private funds with public funds. Proposed work on private land within the Segment will be developed in cooperation with the project participants and the land owner to ensure maximum benefit to the health of the river.

Any funds remaining after implementation of the Habitat Project will be used for additional projects to improve the aquatic environment on the Colorado River. Additional projects could include maintenance activities, a bypass around Windy Gap Reservoir or continuing stream improvements downstream to the confluence with Troublesome Creek (the lower terminus of the Gold Medal fishery designation). Other projects would be identified and agreed upon by the project participants.

Effective Date. The Habitat Project will commence when the Subdistrict and Denver Water have received acceptable Records of Decision and permits for their respective projects and have begun final design and construction activities. If a permit is appealed, the Habitat Project will commence after final resolution of the appeal and acceptance of the resolution by the Subdistrict and Denver Water.

Project Implementation. The Habitat Project will be implemented in collaboration with and as a subset of the LBD Cooperative Effort to ensure consistency and coordination with the overall stream enhancement efforts in Grand County. Section 2.2 describes the coordinated implementation and management structure of LBD.

2.2 Implementing the Learning by Doing Cooperative Effort

Denver Water and Grand County have spent over three years working cooperatively to resolve issues related to Denver Water's existing operations in Grand County. Denver Water and Grand County reached a proposed agreement on September 24, 2010 regarding Denver Water's commitments to enhance existing conditions in Grand County. Denver Water and Grand County are currently working with the State to assure that the benefits of Denver Water's commitments can be delivered and protected under Colorado's water rights system. Grand County Commissioners will also conduct a public process to gather input from county residents and other interested parties on the proposed agreement prior to a formal vote by the Commissioners on the agreement. A major component of the proposed agreement is the LBD Cooperative Effort. This is a cooperative, iterative and ongoing process to maintain, and when reasonably possible, restore or enhance the stream environment in the Fraser and Williams Fork river basins, and in the mainstem of the Colorado River from the outflow of Granby Reservoir to its confluence with the Blue River.

The Subdistrict has also been working cooperatively with Grand County and other West Slope stakeholders to develop an IGA regarding additional enhancements to existing conditions in Grand County. The IGA has not been completed, but the Subdistrict has committed to participate in the proposed LBD Cooperative Effort.

The Grand County Stream Management Plan (SMP) is the framework for the overall LBD Cooperative Effort. The SMP will be used as a "living" document that will be revised as additional monitoring data are gathered and as management goals for each stream reach are agreed upon. Types of restoration opportunities include channel bank revegetation, enhancing fish passage, applying enhancement flows to existing low and/or high flow conditions, and in-stream habitat restoration.

The LBD Effort will be implemented with the following management structure, as shown in Figure 2.

Management Committee – The LBD Cooperative Effort will be managed by representatives of the public entities contributing resources to the various activities and projects undertaken by the group. Resources are defined as funding, water, project design, and/or equipment and manpower to implement a project. The Management Committee will operate by consensus under the LBD Cooperative Effort IGA. A copy of the proposed IGA is included in Appendix A of this Enhancement Plan. The Management Committee will include one representative from:

- Denver Water
- Northern Colorado Water Conservancy District, Subdistrict
- Grand County
- Colorado River Water Conservation District
- Middle Park Water Conservancy District
- CDOW

The Management Committee may elect to invite others to participate as members of the Management Committee based on commitments to long-term contributions of funding or other tangible resources that will further the goals of the LBD Cooperative Effort.

Advisory Committee – The Management Committee may request participation by other parties, such as representatives from environmental, recreational, governmental and agricultural interests, to provide expertise and technical advice. It is anticipated that Trout Unlimited and the U.S. Forest Service, among others, would be invited to be advisors.

Responsibilities – The responsibilities of the Management Committee, with input and assistance from the Advisory Committee, include:

- ***Monitoring Plan*** – A long-term monitoring plan will be developed and implemented to identify critical stream reaches and assign priorities for actions; identify changes in the aquatic environment; evaluate effectiveness of actions taken, and modify and refine strategies for achieving the goals of the LBD Cooperative Effort.
- ***Operations Plan*** – As stream reaches are prioritized and projects identified, the Management Committee will develop an annual Operations Plan to maximize the stream environmental benefits with the available resources such as water commitments, system flexibility and funding. The Management Committee will meet as frequently as necessary to explore opportunities to coordinate operations of all diversion structures and reservoir releases among all water users in Grand County.
- ***Enhancements*** – Denver Water committed in the proposed mediation agreement to provide substantial resources of money, water and system flexibility for the purpose of maintaining, restoring or enhancing the Upper Colorado, Fraser and Upper Williams Fork watersheds. Additional resources can be contributed by other parties to implement the LBD Cooperative Effort.
- ***Annual Review*** – The entire LBD Cooperative Effort, inclusive of coordinated operations, stream reach prioritization, stream improvement projects and monitoring programs, will be reviewed annually by the Management Committee in refining and updating the plans and projects.

STREAM PROJECTS

The Management Committee, with input from the Advisory Committee, will prioritize stream reaches for implementing stream improvement projects.

Stream Team – A specific stream project, as prioritized by the Management Committee, will be managed by a “Stream Team” comprised of organizations or individuals that have committed resources to that specific project. Resources are defined as funding, water, project design, and/or equipment and manpower to implement a specific project. Each Stream Team will consist of representatives of the Management Committee, who will be contributing resources, to ensure consistency and

continuity with the LBD Cooperative Effort, plus any other contributing members. Each Stream Team will only develop and implement enhancement projects that support the goals and priorities of the LBD Effort. Private landowners who contribute resources, or have a conservation easement allowing public access, would be invited to participate on the Stream Team for their respective segment of the river. These landowners would approve any projects proposed by the Stream Team on property they own. Contributing Members of each Stream Team will enter into a binding agreement to implement the project, and will operate by consensus. The binding agreement will reference the LBD Effort IGA.

Advisory Team – The Stream Team will invite other interested parties such as representatives from environmental, recreational, governmental and agricultural interests, to serve as technical advisors on a particular project.

Upper Colorado River Habitat Project

The first identified project is the Upper Colorado River Habitat Project described in Section 2.1.

Stream Team: The contributing members of the Habitat Project Stream Team include:

- Denver Water
- Subdistrict
- CDOW
- Grand County
- Landowners (who contribute funding and/or resources, or have a conservation easement allowing public access, for their respective segment of the river)

The Habitat Project Stream Team will operate by consensus (i.e., unanimous vote) and make good faith efforts to resolve any conflicts. If the good faith effort does not result in consensus, the Habitat Project Stream Team will refer the issue to the LBD Management Committee for resolution. If the Management Committee cannot resolve the issues, it will be submitted to the Director of the DNR for resolution. Prior to referral, the unresolved issue will be summarized in writing with an explanation of any “competing views” and efforts to date to resolve the matter.

Advisory Team: Interested parties not contributing resources, including Trout Unlimited and landowners.

Implementation of Habitat Project: The Habitat Project will be managed by the Habitat Project Stream Team with advice from the Advisory Team and will likely consist of several phases.

- *Project Goals* – The Team will begin by setting specific goals for the Habitat Project to promote functionality of the river system. Goals may include specific biological goals related to health of the aquatic ecosystem, including fish and macroinvertebrates (e.g. trout, *Pteronarcys* and sculpin). The Habitat Project goals will be consistent with the LBD Effort and the SMP.

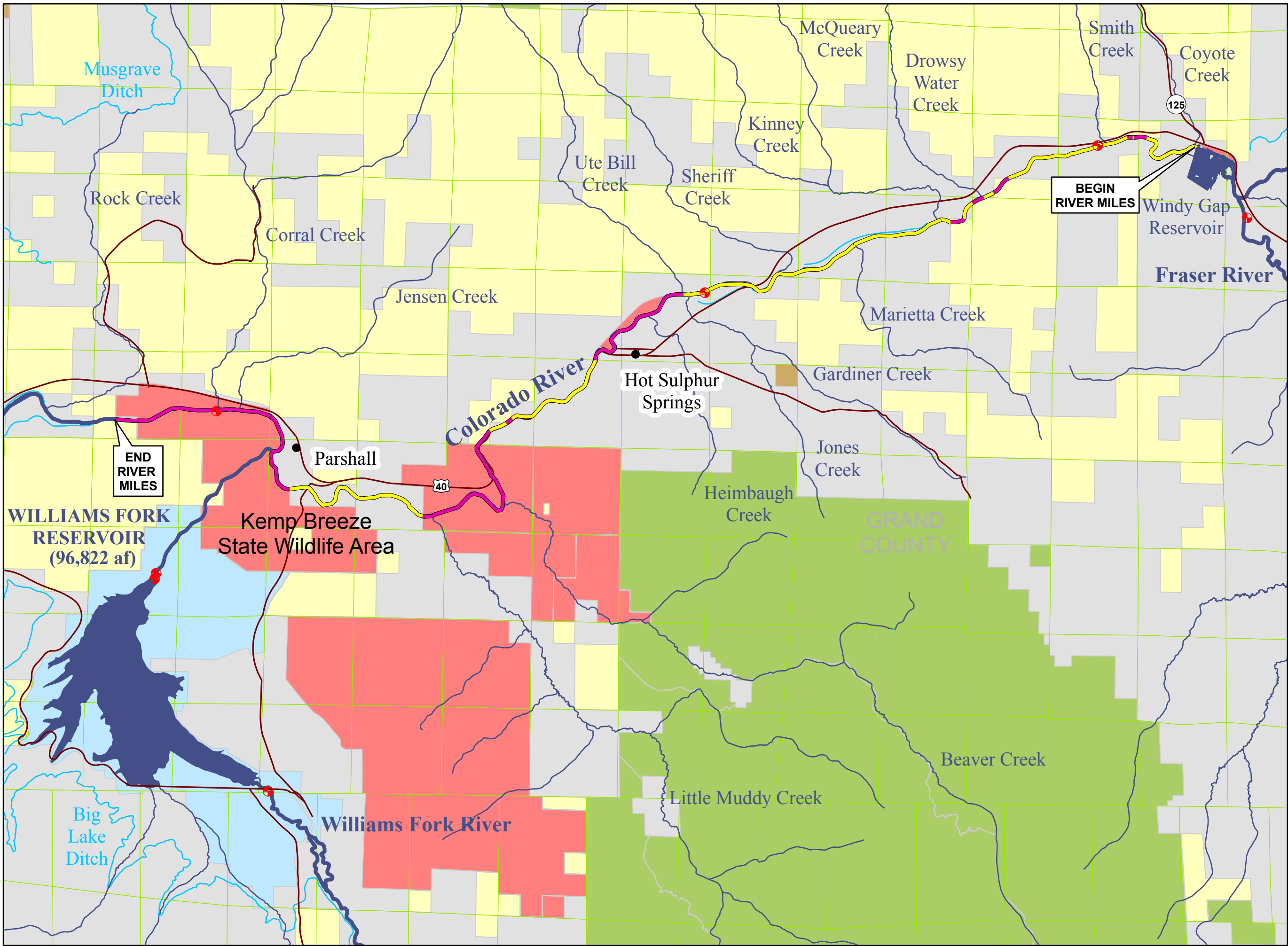
- *Project Design* – The Team will evaluate the most effective and sustainable restoration opportunities for the Segment. Different designs or solutions may be appropriate and implemented for different parts of the Segment. The Team will evaluate restoration opportunities based on site-specific field evaluations, data from the SMP, and the specific objectives for a given reach.
- *Implementation* – The Team will prioritize proposed habitat improvements, as well as allocation of funding for public and privately-owned stream segments. The Habitat Project will be implemented over time as stream reaches are prioritized and designs are completed. The CDOW will be responsible for the final design, permitting and implementation of the stream restoration activities.
- *Monitoring* – The Team will determine the appropriate monitoring activities to measure outcomes from implementing the Habitat Project taking into consideration monitoring already in place or proposed as part of the LBD Effort. The CDOW will be responsible for the long-term monitoring and maintenance of the stream restoration activities.

3.0 RELATIONSHIP TO PROJECT MITIGATION

Both Denver Water and the Subdistrict will comply with all mitigation measures required in the permits for their respective projects, Moffat Project and WGFP. Compliance with the mitigation measures in permits will be the sole responsibility of the permittee (i.e., Denver Water and the Subdistrict). However, Denver Water and the Subdistrict are members of the Management Committee, and will collaborate, to the extent practicable, to implement the mitigation measures in a manner consistent with the objectives of the LBD Cooperative Effort and specific Stream Team efforts.

The stream enhancement cooperative efforts, such as the Upper Colorado River Habitat Project and the LBD, are efforts to enhance the existing environment and are not intended to substitute for any mitigation required by the federal agencies for the projects. The goal is to coordinate the application of any required mitigation efforts with the voluntary and collaborative efforts of the stream enhancement projects to assure the maximum benefit for the stream environment.

If the Corps and the Bureau do not require any mitigation in the Segment to offset impacts identified in the Moffat Project or the WGFP, Denver Water and the Subdistrict will enter into a binding agreement with CDOW and the Stream Team for the Habitat Project, as described above. If the Corps or the Bureau requires aquatic mitigation in the Segment, some or all of the committed resources listed above may be enforceable through conditions in the permits. The Habitat Project will be implemented in a manner that complements any mitigation measures required by the Corps for the Moffat Project or by the Bureau for the WGFP.



Upper Colorado River Vicinity

Windy Gap to Williams Fork River

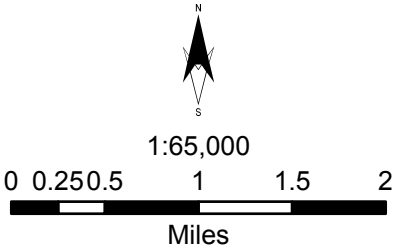
FIGURE 1

Legend

- Town
- ⊕ Gaging Station
- Major Stream or River
- Major Canal, Aqueduct or Pipeline
- River access is Private
- River access is Public
- Roads
- Public Land Survey - Section Line
- BLM
- Colorado DOW
- Denver Water
- PRIVATE
- State Land Board
- USFS - Arapahoe Natl. Forest

Total river miles from Windy Gap Reservoir to the West end of Kemp Breeze SWA is 16.70.

Additional adjacent land-use totals:
Private = 9.40
Public = 7.30



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Land Ownership compiled by the Natural Resources Ecology Lab (NREL) at Colorado State University, Fort Collins, CO as COMaP v.7.

Theobald, D.M., G. Wilcox, S.E. Linn, N. Peterson, and M. Lineal. 2008. Colorado Ownership, Management, and Protection v7 database. Human Dimensions of Natural Resources and Natural Resources Ecology Lab, Colorado State University, Fort Collins, CO. 15 September. www.nrel.colostate.edu/projects/comap

March 2011
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Implementing the “Learning by Doing” Cooperative Effort

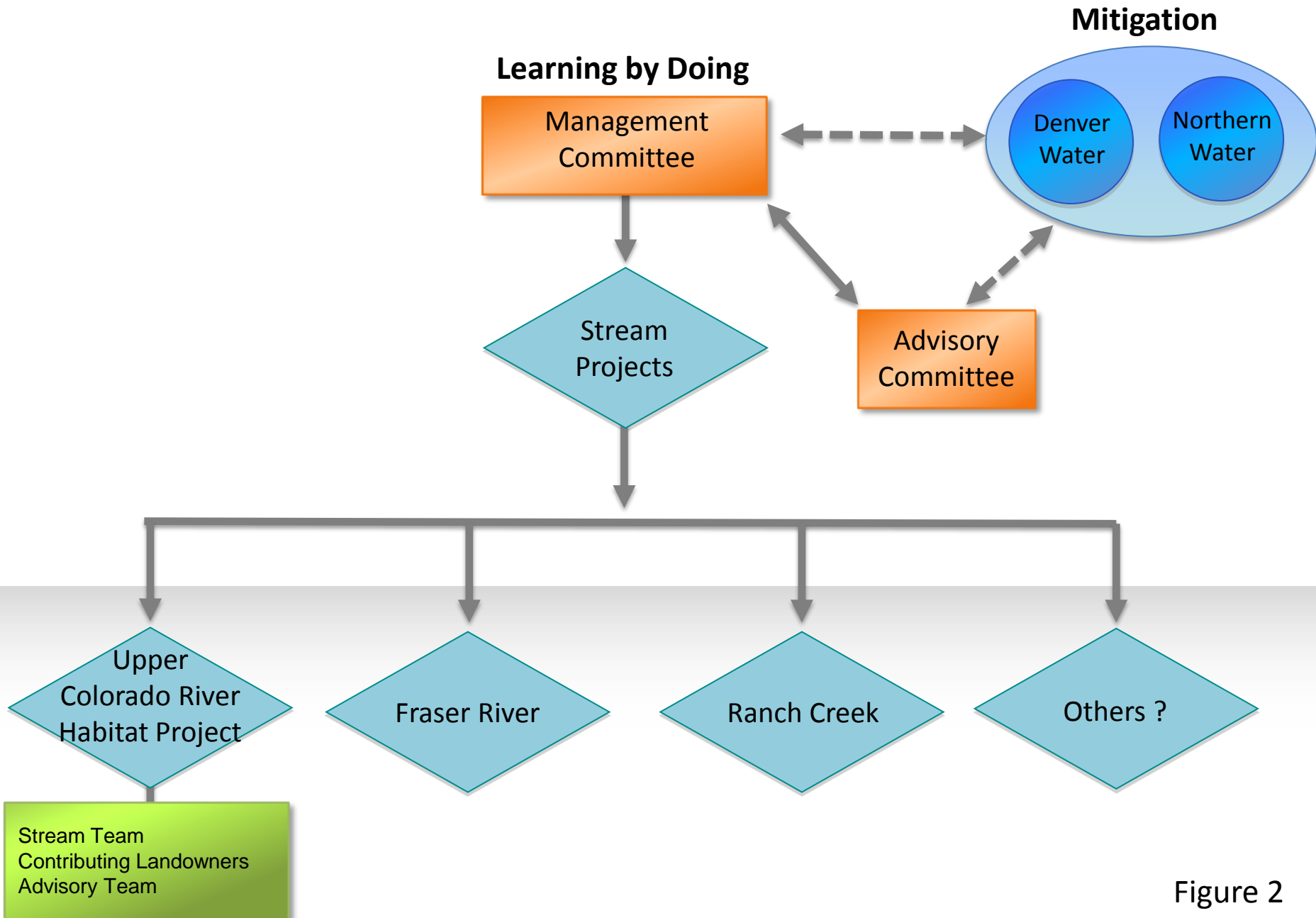


Figure 2

Appendix A

**Summary of Denver Water's Enhancement Agreement
under the Mediation Effort with Grand County and
Other West Slope Parties**

and

**Proposed Intergovernmental Agreement for the
Learning By Doing Cooperative Effort**

Summary of Denver Water's Enhancement Agreement under the Mediation Effort with Grand County and Other West Slope Parties

As part of negotiations between West Slope parties and Denver Water, Grand County and Denver Water have reached a proposed agreement that addresses some of the issues related to Denver Water's existing operations in Grand County. In this proposed agreement, Denver Water has committed to the LBD Cooperative Effort and the following resources to provide environmental enhancements to benefit the aquatic environment in the Fraser, Williams Fork and upper Colorado rivers. A copy of the proposed LBD IGA is included in this Appendix. Denver Water and Grand County are currently working with the State to assure that the benefits of the commitments can be delivered and protected under Colorado's water rights system. Also, the Grand County Commissioners will conduct a public process about the proposed mediation agreement, including LBD, to allow the citizens of Grand County and other interested parties to comment on the agreement prior to the Commissioners considering approval of the agreement. Under the proposed agreement, the following assets will be provided by Denver Water.

- \$2,000,000 to address nutrient loading. If the Mitigation Plan required in the permitting process for the Moffat Project mandates funds for this purpose, then this \$2,000,000 would be proportionately reduced.
- \$1,000,000 for aquatic habitat improvements
- A second \$1,000,000 for aquatic habitat improvements. If the Mitigation Plan required in the permitting process for the Moffat Project mandates funds for this purpose, then this \$1,000,000 would be proportionately reduced.
- Operation of and \$50,000 contribution to construction of the Berthoud Pass sediment basin
- \$2,000,000 for future environmental enhancements
- \$1,000,000 to contribute to the costs of pumping Windy Gap water for environmental purposes
- 1,000 acre-feet annually of bypass water from the Fraser Collection System for environmental purposes
- Up to 1,000 acre-feet annually of releases from Williams Fork Reservoir and 2,500 acre-feet of carry over storage in Williams Fork Reservoir for environmental purposes
- Agree to not reduce USFS bypass flows during a drought unless Denver Water has banned all residential lawn watering in its service area (Denver Water has never banned residential lawn watering).
- Agree to a joint study to determine how best Denver Water's rights in Rich, Hammond no.1 and Big Lake ditches can be used to enhance stream flows and maximize environmental benefits
- Agree to a joint study of Denver Water lands in Grand County to identify those lands that could be set aside for wildlife habitat and public fishing access

With regard to impacts caused by the future operation of the Moffat Project, Denver Water agreed to abide by the mitigation requirements that would be required by the U.S. Army Corps of Engineers in the Section 404 permit for the project.

ATTACHMENT A

Monitoring Plan

Some level of effective monitoring of the stream environment is essential to understanding and measuring success of applied prescriptions. The Management Committee will design an Aquatic Resource Monitoring Plan, which will cover the Cooperative Effort Area. The Monitoring Plan will focus on understanding the resource and preparing to measure the success of the applied prescriptions.

The Monitoring Plan will be developed and implemented as part of the Cooperative Effort, and will incorporate the elements of the monitoring plan prepared during Phase 3B of the draft SMP that the Management Committee determines are appropriate. The monitoring data will be used by the Management Committee for its decision-making. For example, monitoring will be used to identify changes in the aquatic environment, identify critical stream reaches, assign priorities for action steps, evaluate the effectiveness of actions taken, and to modify and refine strategies for achieving goals of the Cooperative Effort.

The elements of the plan will be determined as part of the Cooperative Effort. The Plan could include some or all of the following elements:

- Identification of key stream segments and groundwater to monitor.
- Existing hydrologic conditions.
- Specific existing ecological conditions at key locations.
- Permanent stream transects to monitor and evaluate any future changes in ecological conditions (e.g., shifts in riffle/pool ratios, increases in sedimentation, reduction in stream habitat diversity) associated with changes in channel maintenance and applied flushing flows proscribed in the Cooperative Effort.
- Establish key indicators of aquatic life and stream health (e.g., fish biomass) and threshold levels at specific locations that reflect increases or declines in aquatic life and stream health from application of measures defined in the Cooperative Effort.