The Dolores River Dialogue as an Example of Long-term Collaborative Decision-making

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ABSTRACT

The Dolores River Dialogue (DRD) is a collaborative group of conservation, water management, land management, recreation and government representatives that formed voluntarily in January, 2004 to explore opportunities to better manage McPhee Reservoir and improve downstream ecological conditions on the Dolores River located in Southwestern Colorado. The collaboration uses primary scientific research and historical data to identify ecological outcomes and opportunities, while honoring private property and water rights, protecting agricultural and municipal water supplies and the continued enjoyment of river recreation activities such as rafting and fishing. The DRD has been recognized as an example of a science-based collaborative process that will be used as a model for resource and management decision-making throughout the U.S. This paper describes the formation of the DRD, and how scientific investigation is managed, conducted, and funded by the DRD, as well as examples of recent decisions and management actions undertaken by the DRD including: the Lower Dolores River Plan Working Group contributing to the update of BLM's 1990 Dolores River Corridor Management Plan and Dolores River Watershed Plan.

KEYWORDS: Collaborative Science, Dolores River, Upper Colorado River Watershed, Base Flow Management

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CITED REFERENCES

DRD Foundation Documents

- A Brief Overview of the Dolores River Dialogue (PDF, 14 KB)
- Milestones in the Flow of the Dolores River Dialogue (PDF, 19 KB)
- Plan to Proceed (PDF, 70 KB)
- Core Science Report (7 MB)
- Correlation Report (PDF, 1.6 MB)
- 2007 Big Gypsum Study Site Summary (PDF, 1.8 MB)
- Warm Water Fish (PDF, 105 KB)
- Flow Options Opportunity and Constraints Matrix(PDF, 36 KB)

All of the documents for the DRD are available for download at:

http://ocs.fortlewis.edu/drd/resources.asp

1.0 INTRODUCTION

The Dolores River Dialogue (DRD) convened in January of 2004 with the purpose of exploring opportunities to manage McPhee Reservoir to improve downstream ecological conditions on the Dolores River. Figure 1 includes

Figure 1: Dolores River Locator Map

a locator map for the Dolores River in southwestern Colorado.

The DRD has been working since January of 2004 on strategies to manage McPhee Reservoir to protect and enhance the ecological health and recreational enjoyment of the Dolores River with the assurance that water rights and allocations will be protected. The mission statement of the DRD is as follows.

> *"The DRD is a coalition of diverse interests, whose purpose is to explore management opportunities, build support for and take action to improve the ecological conditions downstream of McPhee Reservoir while honoring water rights, protecting agricultural and municipal water supplies, and the continued enjoyment of rafting and fishing."*

The DRD has about 30 participants including representatives from the following organizations.

- Colorado Division of Water Resources (CDWR)
- Colorado Division 7 Engineer
- Colorado Division of Wildlife (CDOW)
- Colorado Water Conservation Board (CWCB)
- Dolores County
- Dolores River Coalition (DRC) led by San Juan Citizens Alliance (SJCA)
- Dolores Water Conservancy District (DWCD)
- Montezuma County
- Montezuma Valley Irrigation Company (MVIC)
- The Colorado Water Trust
- The Nature Conservancy (TNC)
- Trout Unlimited (TU)
- U. S. Bureau of Land Management (BLM)
- U.S. Bureau of Reclamation (BOR)
- U.S. Forest Service San Juan Public Lands Dolores District(USFS)

1.1 BACKGROUND OF THE DOLORES PROJECT

The Dolores River watershed encompasses approximately 4,620 square miles in southwestern Colorado and southeastern Utah. Most of the lands within the watershed are managed by the BLM or USFS. The headwaters of the Dolores River are located in the San Juan Mountains near Rico, Colorado. The river flows west until it reaches McPhee Reservoir where it turns north and flows into the Colorado River near Dewey Bridge. Total discharge from the Dolores River into the Colorado River is approximately 544,000 acre-feet per year. Peak flows are highly variable with a 50-year high of 17,400 cubic-feet per

second (cfs) recorded in 1958 and a minimum peak 1,250 cfs. The San Miguel River is the only significant tributary to the Dolores River.

The Dolores Project is located in the Dolores and San Juan River Basins in southwestern Colorado and is used to develop water from the Dolores River for irrigation, municipal and industrial users, recreation, fish and wildlife, and hydroelectric power. It provides water to the Dove Creek area, central Montezuma Valley area, and to the Towaoc area on the Ute Mountain Ute Indian Reservation.

The Dolores River has been diverted for agricultural use since the 19th century. In the mid 1880's, private developers constructed both the Tunnel and the Great Cut diversions to bring water from the Dolores River basin into the San Juan River basin's Montezuma Valley. By 1920, the private ditch companies were broke and their systems were in disrepair. Montezuma Valley Irrigation Company was formed in 1920 to consolidate several ditch systems, rehabilitate, operate, and maintain them. MVIC successfully managed the irrigation water delivery system but could never overcome the persistent problem that there never was enough late season water. The Dolores Water Conservancy District was formed in November 1961, and was successful in obtaining authorization of the Dolores Project in 1968. Local voters, by a 94% margin, approved the concept of the project and accepted up to a $26 million repayment obligation to the United States. Construction of McPhee Dam began in 1980 and was completed in 1984. McPhee dam impounds about 381,000 acre-feet of Dolores River water and maintains 229,000 acre-feet of active storage. By 1986 Montezuma Valley irrigators, the Ute Tribe and Dolores Project farmers finally had a long term, dependable supply of water.

Downstream flows from McPhee Dam are determined by minimum flow requirements set in the Environmental Impact Statement for the Dolores Project. Funds were set aside from the Dolores Project (approximately $300,000) to purchase water for mitigation of downstream flows diminished by the Project. Initially, there was high quality trout fishing in the tailwaters of McPhee dam and several months of white water rafting on the

Dolores River during the spring run-off season. However, as the Dolores Project became fully subscribed and drought conditions because more frequent, the base flows in the Dolores River diminished significantly and it was apparent that an alternative approach was need to improve base flows and spill management. Several groups were formed to work with the BOR to tackle this problem including a Biology Committee that recommended changing in-stream flow requirements to a fishery pool managed similar to other "buckets" of water stored in McPhee Reservoir. Although the fishery pool improved flexibility in base flow management, the Biology Committee found that the size of the fishery pool was insufficient to support a high quality trout fishery. Therefore, the Dolores River In-stream Flow Partnership (DRIP) was formed in 1998 to acquire additional water for the fishery pool. DRIP considered several options including additional water storage above McPhee Reservoir. DRIP could not reach consensus on a solution and dissolved in 2001, just as the drought of 2002 and 2003 set in.

1.2 FORMATION OF THE DOLORES RIVER DIALOGUE

After DRIP dissolved, concerned citizens worked with San Juan Citizens Alliance (SJCA) to organize another group to evaluate base flow options and spill management for the Dolores River. Background organizational work between SJCA and DWCD proceeded for about one year prior to December 2003, when letters were mailed to a variety of Dolores River stakeholders inviting them to the first DRD meeting. The letter was jointly from the manager of the DWCD and the director of the Dolores River Coalition, a group of 23 environmental organizations led by SJCA. The Statement of Intent, agreed to by consensus of the DRD in spring 2003, outlined the purpose and goals of the newly formed group.

> *"It is the intent of the Dolores Water Conservancy District and the Dolores River Coalition, in collaboration with other interests, to discuss the management of the flows of the Dolores River to determine how the river might best be managed to serve the needs of the various human and natural communities of the basin and the region. The parties will act by a general consensus. This collaborative effort is not intended to involuntarily diminish the quantity of water available for the current Dolores Project beneficiaries or the operational flexibility needed to meet the demands of project beneficiaries."*

The DRD then developed and authorized a Plan to Proceed which defined the understandings and decisions that the group would undertake. Specifically,

"This Plan To Proceed outlines the three technical understandings required to get to the point where the Dolores River Dialogue Group can make a responsible decision about what, if any, action to take to implement its goals. First, a water availability analysis needs to be done. That analysis needs to describe the amount of water expected to flow downstream of McPhee Reservoir through spills and base flow releases. It also needs to describe the realistic opportunities to manage or enhance those flows. Second, an analysis of potential downstream environments needs to be made. The science associated with different flow patterns downstream of McPhee Reservoir needs to be described. Third, a correlation between those two efforts needs to be made that will illuminate the practical actions that could result from the efforts of the DRD Group. A matrix of doable alternatives with identified consequences (scientific, institutional, legal, political, and fiscal) will be described. The Plan's finished products are designed to be thorough, credible, and realistic in their analysis of what is possible and what hurdles different actions may potentially face."

The highlights of the tasks completed by DRD as it worked through Plan to Proceed are summarized in the chronology in Figure 2.

Figure 2. Chronology and Milestones of the DRD

Date	**Milestones**
January 2004	DRD convened for the first time
February 2004	DRD developed the list of underlying opportunities into four broad "Opportunity Groups:" a. Increase Water Supply for Downstream Uses b. Manage Water Supply c. Improve Stream/Riparian Conditions d. Act on Dolores River Dialogue Consensus
Feb- July 2004	Series of "Two Cut" discussions of each of the above Opportunity Groups.
April 2004	Technical Committee established to begin working on a "Plan to Proceed" with regard to information gathering and analysis.
October 2004 - January 2005	Plan to Proceed reviewed and finalized by DRD calling for Technical Committee to oversee: a. Hydrology Group Formation and Report b. Core Science Team Formation and Report c. Correlation Report (integrating hydrology and core science) d. Matrix of Opportunities (assessing benefits, constraints, costs of current and alternative management scenarios).
November 2004	DRD begins review of Hydrology Group Report.
January 2005-May 2005	Core Science Team Formed and Core Science Report issued in May 2005 under guidance of the Technical Committee. a. Defines 8 reaches from McPhee Dam to confluence with the Colorado, addressed via the following disciplines: i. Geomorphology ii. Cold Water Fisher iii. Warm Water Fishery iv. Riparian Ecology.
Spring 2005: A Spill at Last	a. DRD Core Science input into spill management planning. b. BOR provides pre and post-spill videography. c. Pre and post spill photo points documented by Science Coordinator.

	d. Monitoring of spill responses at Big Gypsum Site
January 2006	(DRD Meeting 11): Full DRD Review of Core Hydrology Report, Core Science Report, Overview of 2005 Spill, Correlation Report Template, and presentation by USFS/BLM San Juan Public Lands Office on Resource Management Plan Revisions, including Wild and Scenic River component.
April 2006	(DRD Meeting 12): DRD reviewed Big Gyp Field Science plan for 2006, forecast for the spill that didn't happen, fish survey opportunities, and correlation report progress.
June 2006	DRD subgroup reviewed and formulated comments on all Dolores District streams on the Draft Wild and Scenic River Eligibility list under consideration as part of the San Juan Forest/BLM Management Plan Revision.
November 2006	DRD submitted application for funding of a 319 Watershed Plan.
July 2005 – February 2007	The Technical Committee met no fewer than 14 times to organize, develop, and review the Correlation Report, the Opportunity Matrix and the Field Science efforts.

Between inception in January 2004 and January 2010, the DRD self-organized into several working committees led by the Technical Committee that meets at least monthly, a Hydrology Group, Core Science Team, and other smaller working groups. The DRD has been successful in obtaining funding to complete this work from the many diverse sources including:

- San Juan Citizens Alliance: Funded DRD meeting facilitation/meals, development of 319 Watershed Protection Grant, and substantial staff time.
- Dolores Water Conservancy District: Has provided majority of facility and administrative overhead costs and shared cost of DRD meals, and substantial board and staff time.
- Colorado Water Conservation Board: Contributed funds to Core Science report (2005), Big Gyp Field Ecology Work (2006), and substantial staff and board time.
- The Nature Conservancy: Provided funding for Core Science Report (2005), and substantial staff time.
- Bureau of Reclamation: Funded pre and post spill videography (2005) and aerial photography (2006) and substantial staff time.
- Colorado Watershed Assembly (2005): Contributed funds for Core Science Work, Opportunity Matrix, and related coordination and communication (2005).
- Colorado Division of Wildlife: Has provided fish surveys and substantial staff time.
- Montezuma County and Montezuma Valley Irrigation Company- Substantial staff contribution to core science, GIS work.
- Fort Lewis College, Office of Community Services and Biology Department, facilitation and participation in field science work

2.0 COLLABORATIVE SCIENCE AND THE DOLORES RIVER DIALOGUE

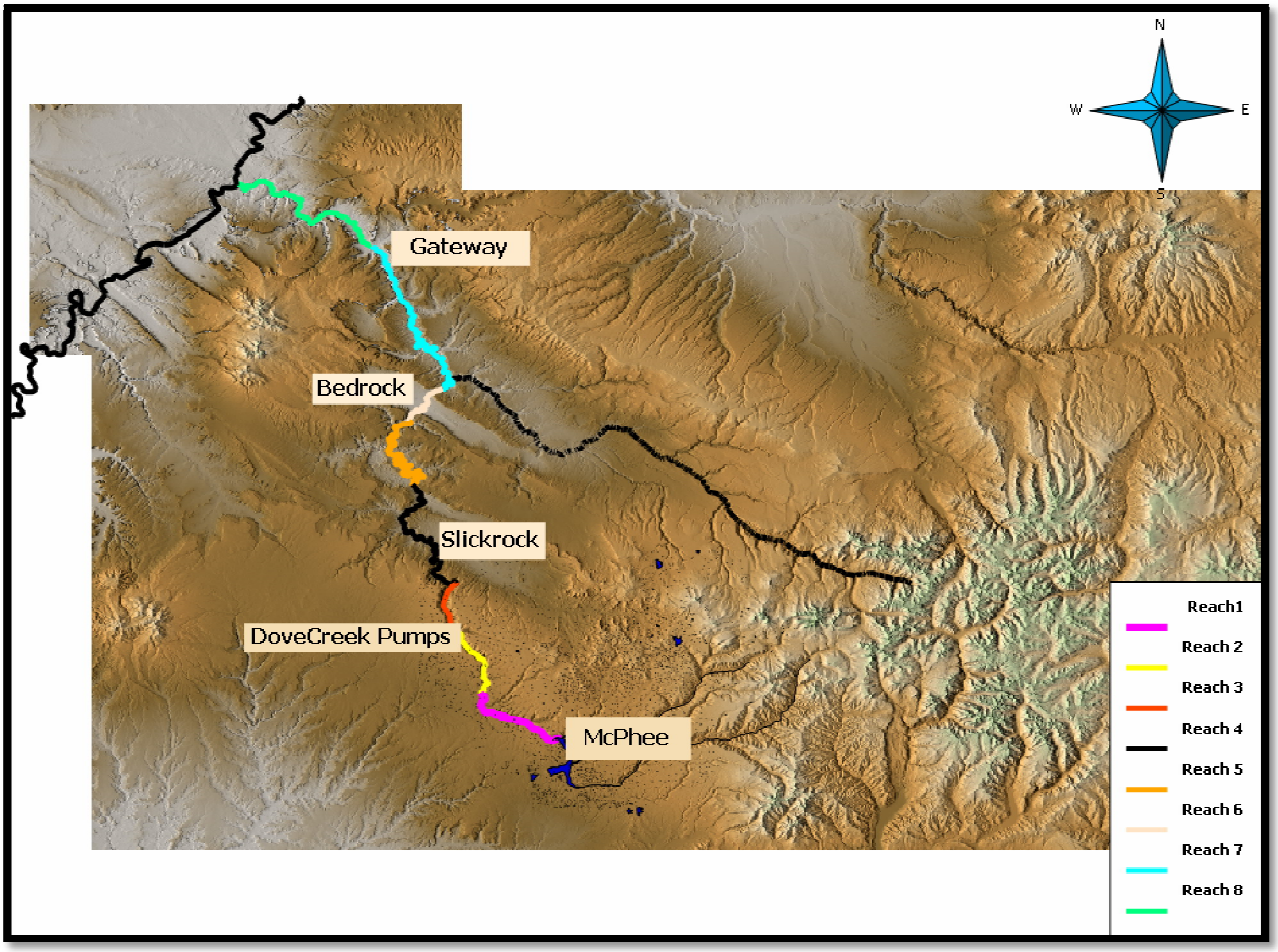
Thorough, credible and realistic information is the foundation of the DRD and its decision-making process. The Core Science Team was established by the DRD in January 2005. The four primary areas of investigation for the Core Science Team are:

1. Riparian ecology
2. Warm-water native fishery
3. Cold-water trout fishery
4. River mechanics/geomorphology

With a very limited budget, the DRD Science Coordinator worked with leading researchers to compile the Core Science report for the Dolores River. This report summarizes existing literature and data on the Dolores River, discusses linkages between ecological and physical processes, identifies key data gaps, and provides a basis for future recommendations regarding flow management, channel work, and other management strategies.

In order to provide a framework for analysis of conditions along the lower Dolores River and illuminate potential future management opportunities, the Core Science Team divided the Dolores River below McPhee Dam into eight reaches illustrated in Figure 3. These reaches were identified by distinct differences in gradient, sinuosity, chemical parameters (e.g. salinity), vegetative characteristics and potential limiting factors to natural stream channel movement and formation. Descriptions of the first six river reaches from McPhee Dam to the confluence of the Dolores and San Miguel Rivers are included below.

Figure 3: Map of Dolores River Dialogue Reaches



- **<u>Reach 1</u> McPhee Dam to Bradfield Bridge (length of reach: 20 km/12 miles)** – This low-gradient reach has a riparian area dominated by narrow-leaf cottonwood, box-elder and willow. The reach is contained within a wide valley bottom, and the channel is characterized by meandering pools-riffle sequences typical of alluvial environments. This reach is well known as the "Catch and Release" area and because of the investment in the coldwater trout fishery by CDOW for fish stocking and habitat improvement. This reach has been the focus of previous flow management efforts. This entire reach is accessible by gravel road.
- **Reach 2 Bradfield Bridge to Dove Creek Pumps (32km/19 miles)** – This reach has a steeper gradient, and channel pattern and structure are controlled by bedrock outcrops and boulders introduced from slopes and cliffs along the river. Riparian vegetation is characterized by Ponderosa Pine woodland with willows

and oaks along the stream corridor. This reach is secluded and can only be accessed by foot, horseback, or floating the river.

- **Reach 3 Dove Creek Pumps to Joe Davis Hill (15 km/9 miles)** – A relatively steep river gradient and a channel confined by steep cliffs and large boulders characterize this reach. A two-track dirt road provides access throughout this reach. Ponderosa pine/ box elder dominate the riparian area with some old cottonwood stands on river terraces. The pine-box elder canopy gives way downstream to willow and sedge-dominated stream banks, with juniper and pinon pine occupying habitat above the active channel.
- **Reach 4 Joe Davis Hill through Big Gypsum Valley (63km/38 miles) –** This reach is fairly flat with a near-stream corridor dominated by sage, rabbitbrush, and greasewood on the upper banks with increasing tamarisk downstream. Riparian areas include fairly dense willow-sedge communities, with increasing presence of *phragmites* sp. in the downstream direction. The reach has three distinct sub-reaches: Joe Davis Hill to Disappointment Creek (confined, mainly colluvial and bedrock controls); Disappointment Creek to Big Gypsum Valley (mainly confined, but heavily affected by sediments from Disappointment Creek); and the alluvial reach through the Big Gypsum Valley.
- **Reach 5 Big Gypsum Valley to Wild Steer Canyon (70km/42 miles) –** Reach 5, known as the Slickrock Canyon, has a low gradient, high sinuosity, and is confined by steep canyon walls. The river through most of this reach is only accessed by foot or floating the river. A BLM Wilderness Study Area surrounds this reach of the river.
- **Reach 6 Wild Steer Canyon to San Miguel River (20km/12 miles to Saucer Basin)** Flat and wide with high concentrations of salt, this area is dominated by tamarisk. Large stands of very old cottonwoods still exist, disconnected from channel dynamics, and there is little or no evidence of regeneration. A salt dome beneath the Paradox Valley introduces high salt loads into surface water through this reach.

2.1 Ecological Objectives for the Dolores River

The Core Science Report, Draft Hydrology Report and Draft Correlation Report, as well as the Colorado Division of Wildlife's native and cold-water fishery objectives, all informed group's identification of these goals. These goals are summarized in Figure 4.

Figure 4. Ecological Goals and Objectives for the DRD

Ecological Area	Ecological Goals and Objectives
Riparian Health	Floodplain scour/ deposition.
	Floodplain saturation (nutrient cycling).
	Cottonwood seedling establishment.
Native Fishery	Spawning.
	Year class recruitment.
	Adult fish survival.
	Reduce non-native fish populations.
Trout Fishery	Combined biomass great than 30 pounds per acre (3-year average)
	Stocking recruitment (+1 size class evident).
	Maintain 10 trout per acre (3-year average)
River Mechanics	Scour fine sediment as result of "flushing flows".
	Frequently mobilize channelbed surface.
	Periodic channelbed scour/ coarse sediment flux.
	Infrequent channel resetting flow.

The DRD's 2005 Core Science Report highlighted the value of establishing a long-term research location on the Dolores River. In 2007 the DRD Technical Committee received funding from the Colorado Water Conservation Board to support additional investigations on the reach of the Dolores flowing through the Big and Little Gypsum Valleys, known as the Big Gypsum Study Site. This alluvial reach located in the center of Reach 6 (see Figure 2) is a good long term study site for several reasons:

- it is readily accessible by road,
- it is stewarded by a supportive private landowner,
- it was the focus for study of native fish, channel dynamics and riparian health in the Core Science Report,
- it has a channel and vegetation that are likely to be responsive to changes in flows.

The Big Gypsum Study Site is being used to evaluate the ecological response of the Dolores River to various flow, spill management and restoration opportunities resulting from a combination of weather conditions, water management decisions and restoration experiments.

In 2010 and 2011, with support from the Colorado Water Conservation Board, DRD is leading science efforts to address the following questions related to variations in downstream flow of the Dolores River using study data from the Big Gypsum site.

- What new scientific information has been produced (by DRD, partners and/or others) since 2005, and how does it relate to spill and base flow management out of McPhee Reservoir?
- Are soil salinity, germination site creation and/or groundwater drawdown rates limiting to native riparian plant species in the Big Gypsum Study Site?
- What plan-view changes have occurred to the river channel through the Big Gypsum Study Site since completion of McPhee Dam? Are the location, sinuosity, rates of channel movement different pre versus post dam?
- How have the shape, area and elevation of previously established channel cross-sections changed over time?
- How does the composition and cover of riparian vegetation vary across Big Gypsum Study Site? How does the composition and cover of riparian vegetation vary with respect to the post-dam flood frequency elevations?
- What flows or sequence of flows correspond to the establishment of cottonwoods currently growing in the Big Gypsum Study Site?
- How do the quantity of flow and the level of release of water from McPhee Reservoir affect temperature, dissolved oxygen, conductivity and pH in the cold and warm water reaches below McPhee Dam?
- Are temperatures, dissolved oxygen, conductivity, pH, and turbidity in Reaches 1 & 2 limiting to trout spawning? Survival? Non-native competitors and predators?
- Are temperatures, dissolved oxygen, conductivity, pH, and turbidity in Reaches 2-6 limiting to native fish spawning? Survival? Non-native competitors and predators?
- Are low flow water quality conditions in the winter conducive to trout survival? Native Fish survival?

DRD partners are also pursuing and coordinating with DRD on questions pertinent to flow management, including:

- What flows or sequence of flows correspond to the establishment of tamarisk at the Big Gypsum Study Site?
- What is the fish species composition and abundance in Ponderosa Canyon, at the Big Gypsum Site and in Slickrock Canyon?
- What is the estimated abundance and trend for trout and native species at 5 long-term sampling sites between the Dam and Dove Creek Pumps?
- What is the most effective channel dimension given post-dam flows? What size sediment is being moved by post-dam flows? Is imbeddedness of the channel bottom an issue? What is the impact of dam on alluvial environments?
- How effective are the Dolores Riparian Restoration Partnership's efforts at controlling tamarisk and restoring riparian vegetation to treated sites?

- What should the Dolores Public Lands Center do to restore native vegetation in conjunction with active and passive tamarisk control?

- What is the location and estimated density of tamarisk along the Dolores River?

2.2 THE COLORADO DIVISION OF WILDLIFE (CDOW) AND THE DOLORES RIVER DIALOGUE: A STATE AGENCY PERSPECTIVE OF THE COLLABORATIVE STEWARSHIP PROCESS

2.2.1 Strategic Planning and Wildlife Management

The CDOW is responsible for the management of terrestrial and aquatic wildlife resources for recreational and conservation purposes. Imbedded in the CDOW's Strategic Plan (2010-2020) are the recognition of the statewide benefits of wildlife conservation for the use and enjoyment of residents and visitors to Colorado. In order to achieve long-term sustainability of the diverse species in the State, the Plan specifically recognizes the following:

- That diverse species assemblages require both an underlying quality and quantity of habitats
- That management decisions must be science-based in order to put the values of wildlife resources ahead of short-term special interests
- That partnerships with both public, private, and non-profit entities, as well as with private citizens and volunteers are critical to the protection of Colorado's wildlife and wildlife habitats
- That wildlife management decision making will recognize social and economic considerations of local communities that may be affected by these decisions.

The DRD is based on a similar recognition that community stewardship pays multiple dividends to its stakeholders, and as such, the DRD provided a natural opportunity for the CDOW to foster community participation in management of the Dolores River to improve the downstream ecological conditions below McPhee Dam. The CDOW also has had a history of collaborative processes related to management of the downstream habitats and water releases from McPhee Dam. These processes include: an intergovernmental agreement with the BOR and the USFS to cooperatively manage the river corridor down to Bradfield Bridge; membership on the Biology Team, charged with prescribing an annual hydrograph to the fishery pool (Dolores Project allocation); and the Dolores River In-stream Flow Partnership (DRIP), charged with acquiring additional water for the fishery pool. Thus the CDOW not only brings its own mandates and scientific expertise to the table, but also an historic perspective that helps inform activities on the Dolores.

2.2.2 Fishery data and management

The CDOW has been the main source of fishery data for the DRD science program. The CDOW's sampling efforts consist of annual two-pass electro-shocking at 5 sites in the first two reaches, a research effort from 2001 to 2005 located 117-125km/70-75 miles downstream from McPhee dam in Big Gypsum Valley, and more recently, longitudinal sampling of two reaches isolated by remote canyons that had not been sampled in many years. In addition, CDOW has been periodically sampling other warm water reaches downstream of the San Miguel River confluence to understand species composition and assess the status of native species of concern

(roundtail chub, flannelmouth and bluehead suckers). Since McPhee Dam was closed in 1986, the CDOW has annually sampled the coldwater reach below McPhee Dam (DRD Reach 1) for biomass estimates, numbers of quality fish, species composition, and to detect population trends over time. Coldwater fishery management has also entailed annual stocking of fingerlings (rainbow and cutthroat trout) and on occasion, implementation of habitat improvement projects. In addition, CDOW annually monitors a site approximately 53km/32 miles below McPhee dam that is considered 'transitional' zone between coldwater and warm water habitats. Data collected at this site has been important to detect emerging issues related to the warm water conservation species in the Dolores. Specifically, the downward trends over time for flannelmouth and bluehead suckers and the emergence of small but stable populations of non-native warm water predator species (green sunfish and smallmouth bass) has led the CDOW and DRD to focus recent efforts toward optimizing releases for native warm water fish.

Before implementation of the Dolores Project, the Dolores River below the dam site had long been impacted by late-summer dewatering and grazing of the river corridor. In addition to the establishment of base flows for the downstream fishery, a central Dolores Project mitigation component was the acquisition of much of the private lands located within 20km/12 miles below McPhee dam to be held by the State for habitat management, which is interspersed with Federal lands and a few small private in-holdings. In addition to intensive fishery sampling in this reach, the CDOW has conducted a geomorphic study at this location. The objectives of this study have been to detect at what flows the dominant bed materials are mobilized, and more generally, to determine how the alluvial channel through this reach has adjusted to changes in stream-flow since dam closure. Optimal plan-form and cross section geometry can then be determined, and future in-stream habitat projects can be supported by the physical processes governing sediment flux. Ongoing monitoring of stream cross sections and profiles continues to refine the target flows needed to meet geomorphic objectives.

2.2.3 CDOW, the DRD and the Collaborative Process

The CDOW has had many experiences engaging constituencies in collaborative processes, including those noted above specific to the Dolores River below McPhee Dam. Many of these have been critical to meeting stated objectives for wildlife management. However, CDOW's experience in collaborative stewardship efforts has also included processes that inhibited the CDOW from meeting objectives, as CDOW participants were left with the feeling that what were believed to be mutual objectives at the onset of the process became politicized, high-jacked, or stone-walled by special interests. To the extent these processes can facilitate the CDOW meeting objectives for wildlife, fishery, or habitat management, they are supported by providing information, human resources, and in some cases, grant money to enable these processes to continue their work. The Dolores River Dialogue has met certain objectives for fishery management, most notably, the engagement of the local community and water providers to cooperate in addressing some significant problems related to both the trout fishery and the native warm water fishery in the Lower Dolores. Thus far, however, meaningful steps that would result in assurance that these fisheries are no longer threatened have not been forthcoming. As the State wildlife agency, the CDOW has many options and leverage points outside the collaborative process that it can utilize to meet objectives for fisheries management, including working directly with Federal partners, imposing regulations, or affecting other permitting processes that may have bearing on strategic goals. At the end of the road is the Endangered Species Act, a significant federal statute that could essentially usurp the local collaborative process should the native species of concern in the Dolores become listed species. It is the hope of the CDOW that the community can find a way to address downstream ecologic issues prior to a federal listing. The CDOW will continue to actively participate in the DRD until such time that the process is deemed to be departing significantly from management goals within the Dolores, or when it appears that progress toward these objectives is stalled by participation in a collaborative effort.

3.0 DRD DECISION-MAKING

One of the key tools that the DRD contemplated developing under the "Plan to Proceed" was a "Matrix of Doable Alternatives." From December 2006 through November 2007, having completed drafts of the Hydrology Report,

Core Science Report and the Correlation Report, the DRD Technical Committee then set to work developing the "Matrix of Doable Alternatives". The group envisioned this matrix as a tool for evaluating the pros and cons of a given proposal for managing flows to improve downstream ecological conditions. As criteria for evaluation of management opportunities, the DRD Technical Committee agreed to identify a list of legal, contractual and operational constraints that limit how the McPhee Dam can or will be operated. In addition the DRD Core Science Committee was tasked with developing a list of the specific objectives that would constitute "benefits to the downstream river system" with respect to the four subject areas identified by the Core Science Team: Riparian Health, River Mechanics, Native Fishery, and Trout Fishery. A draft a flow options tool was developed for the Correlation Report. This tool allows decisionmakers to systematically consider McPhee Reservoir operations constraints, river hydrographs and analyze impacts to the ecological goals. The DRD is continuing to refine this tool as well as the decision-making processes and organization of the DRD. Several examples of recent management plans developed using the DRD include the Dolores River Watershed Plan and the Dolores River Corridor Management Plan described in detail below.

3.1 DOLORES RIVER WATERSHED PLAN

The DRD received funding under the Clean Water Act Section 319 (Non-Point Source Pollution) Program to write a Watershed Plan for the Dolores River. A Watershed Plan is a stakeholder driven process developed for the purpose of:

1. identifying existing and potential water quality issues;
2. developing a list of best management practices (BMP's) in order to prevent or reduce the movement of pollutants from the land and surface or ground water into the river, and;
3. maintaining and improving the river's capacity to deal with natural pollutants.

The Environmental Protection Agency has developed a nine-point plan that identifies nine areas that should address in a watershed plan. Once the Dolores River watershed plan is approved by the EPA it opens the door to further funding to contend with the identified sources of pollutants and implement appropriate BMPs. This program has no legal jurisdiction and is entirely voluntary. Land owners may benefit from the program by

receiving funds to improve their land-use practices. The DRD is managing and contributing to the Dolores River Watershed Plan and will likely continue to participate in the follow-on efforts to implement BMPs.

3.2 LOWER DOLORES PLAN WORKING GROUP

Since December of 2008, the DRD has been overseeing a community-based planning process through the formation of the Lower Dolores Plan Working Group ("Working Group"). The Working Group is comprised of conservation groups, water users, rafting interests, County Commissioners, the Ute Mountain Ute Tribe, current members of the DRD, land owners, and many other interests. The DRD's background as being a community forum for dialogue and action related to the Lower Dolores River, created a logical match in teaming up with the Dolores Public Lands Office (USFS/BLM) to organize this Working Group, which is funded with a $99,900 grant from the Colorado Water Conservation Board.

The Working Group is charged with making recommendations to the USFS San Juan Public Lands Office Dolores District about its preferred strategies for protecting Outstandingly Remarkable Values (ORVs) in the Lower Dolores River Valley. The ORVs are listed for DRD Reachs 1 through 5 in Figure 5. The Dolores Public Land Office (USFS/BLM) will take the Working Group's recommendations and prepare an Environmental Assessment (EA) which will result in an updated management plan for the Dolores River Corridor. The current management plan for the Dolores River was adopted in 1990 and is need of updating because of changes to recreation activities and resource development. A key charge to the Working Group is finding an alternative proposal, if possible, to the current Lower Dolores River classification as being suitable for federal designation as a Wild and Scenic River.

Through December 2009, the Working Group has participated in 10 meetings; three field trips; and an extensive series of educational modules focused on orienting the members to issues in the Lower Dolores River Valley including detailed information about the status of the ORVs. The Working Group is currently undergoing a series of activities, discussion groups and exercises to develop its final set of recommendations which are

expected by June of 2010. The Working Group's handouts, minutes, agenda, etc. are on the Web site: http://ocs.fortlewis.edu/drd/handouts.htm.

Figure 5: Outstandingly Remarkable Values for the Dolores River Reaches 1-5

DRD Reach	Archaeology	Fish, Wildlife and Ecological (plants)	Geology	Recreation	Scenery
1	* rare and exemplary prehistoric sites	* Roundtail Chub (rare in this reach)	* sandstone cliffs	* Rafting	* cliffs,
2	- rare and exemplary prehistoric sites * large Anasazi pueblos	* Roundtail Chub	* sandstone cliffs * linear canyons	* Rafting	* cliffs, linear canyons and groves of old growth ponderosas
3	- rare and exemplary prehistoric sites	* Roundtail Chub	* Sandstone cliffs * linear canyons	* Rafting	* cliffs, linear canyons and groves of old growth ponderosas
4	- rare and exemplary prehistoric sites	* Roundtail Chub * Canyon Tree Frog (and Summit Canyon) * NM Privet* Eastwood's Monkey Flower (and McIntyre Canyon)	* Sandstone cliffs * linear canyons	* Rafting	* cliffs, linear canyons and groves of old growth ponderosas
5	* Rare and exemplary	*Roundtail Chub	*Sandstone	* Rafting	*Cliffs

	prehistoric sites *sacred site (rock art panel)	* Canyon Tree Frog *NM Privet *Eastwood's Monkey Flower * Kachina Daisy (Coyote Wash)	cliffs * linear canyons	* Hiking to Pools (Bull Canyon) * Hiking sandy wash(Coyote Wash)	* Linear canyons