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**PROPOSAL TO  
MODIFY OPERATION OF MCPHEE RESERVOIR**

**AND**

**ACQUIRE ADDITIONAL WATER  
FOR FISH AND WILDLIFE PURPOSES**

**ENVIRONMENTAL ASSESSMENT**

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July 1996

Department of the Interior  
Bureau of Reclamation  
Upper Colorado Region  
Western Colorado Area Office, Southern Division

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## PREFACE

In January 1995, a Draft Environmental Assessment addressing the potential effects of a proposal to modify the operation of McPhee Reservoir and to acquire additional water for downstream fish and wildlife purposes was distributed for public review and comment. This assessment evaluated the effects of four alternatives. Numerous comments were received from state and federal agencies, public and private entities, and individuals. Since that time, the Bureau of Reclamation (Reclamation) has considered the comments received and continued to evaluate the feasibility of implementing the various alternatives. Through this process, Reclamation has refined the proposed action and determined that some of the alternatives considered are either not desirable or not feasible for implementation. Reclamation has identified a provider for 3,900 acre-feet (AF) of the additional water required for implementation of the proposed action and secured funding for the acquisition of this water. This document addresses the effects of only two alternatives, the proposed action and no action.

Two alternatives (Alternatives 2 and 3) evaluated in the original Draft Environmental Assessment have been eliminated from consideration. Alternative 2 was similar to the proposed action except the pool of storage established in McPhee Reservoir for downstream fish and wildlife purposes did not share shortages with other project water users. This alternative was eliminated because it would cause unacceptable adverse impacts to the other project water users during drought periods. Alternative 3 was similar to the proposed action except the volume of additional water acquired was limited to 3,900 AF resulting in a total pool of water established in McPhee Reservoir for downstream fish and wildlife purposes of 33,200 AF including the water for senior downstream water rights. This alternative was eliminated because it would not provide the desired benefits to the downstream cold water fishery.

Since January, 1995, Reclamation has been involved in negotiations with three primary Dolores Project contractual beneficiaries, Dolores Water Conservancy District (DWCD), Montezuma Valley Irrigation Company (MVIC) and the Ute Mountain Ute Tribe, concerning completion of the Project. These negotiations have included the acquisition of water for downstream fish and wildlife purposes in addition to completion of construction of work items. With limited funding, Reclamation has negotiated for the completion of work items through cooperative agreements and grants with each entity as opposed to traditional Reclamation construction methods. The cost saving from this approach will be used for the acquisition of additional water. Grants and/or agreements have been approved by MVIC, DWCD and the Ute Mountain Ute Tribe. The DWCD agreements include the acquisition of 3,900 AF of water for downstream purposes upon payment and the Ute Mountain Ute Tribe agreement includes the lease of 3,300 AF of water for up to 5 years.

A draft of this document was distributed for public review in January, 1996. Numerous comments were received and the draft was modified as appropriate to incorporate the comments. The major areas of concern were the cost sharing requirement for permanent acquisition of the 3,300 AF portion of the additional water for downstream fish and wildlife purposes and possible adverse affect to white water boating opportunities. The Forest Service, Bureau of Land Management, Fish and Wildlife Service, Colorado Division of Wildlife, and Trout Unlimited were opposed to the cost sharing requirement. These entities expressed concern that this requirement may impede the acquisition of water and preferred that Reclamation fully fund the acquisition. However, these entities preferred the proposed action to the no action alternative and the cost sharing requirement remains as part of the proposed action. The white water boating interests were concerned that acquisition of the additional water for downstream fish and wildlife purposes may adversely affect white water boating opportunities. It was determined that boating opportunities under full Project development would not be significantly affected by implementation of the proposed action as compared to the no action alternative.

# CHAPTER I

## PURPOSE AND NEED FOR ACTION

### A. INTRODUCTION

The Dolores Project (Project) was constructed by the Bureau of Reclamation primarily to store flows of the Dolores River for irrigation and municipal and industrial use. The Project also provides hydroelectric power generation, salinity control, recreation opportunities, fish and wildlife enhancement and mitigation measures, area economic development, and cultural resources mitigation. Construction of the Project began in 1977 and all project facilities are essentially complete.

### B. PROPOSED ACTION

Reclamation, through an agreement with DWCD, proposes to modify the release criteria of McPhee Reservoir and to acquire additional water to increase the volume of project water reserved by the United States for downstream fish and wildlife purposes. The proposed reservoir operation modification would apply only to water released downstream to the Dolores River.

### C. PURPOSE AND NEED FOR ACTION

The purpose of the proposed action is to increase the benefits from the Dolores Project. The downstream release portion of the reservoir operating criteria specified in the Definite Plan Report (DPR) and Final Environmental Statement (FES) has proven to be unsatisfactory for managing the water reserved for fish and wildlife resources in the Dolores River downstream from McPhee Reservoir. A demand for additional water for agricultural, fish and wildlife, and other uses exists. This document intends to establish the size of, and management parameters for, the fish and wildlife pool.

### D. BACKGROUND

Reclamation operated McPhee Reservoir according to the filling criteria from its closure in 1984 until it filled in 1987. The reservoir was operated according to the criteria in the DPR and FES and consistent with the repayment contract between the United States and DWCD from 1987 to June, 1990. The operating criteria in the DPR and FES specified year-round minimum releases to the Dolores River of 20 cubic feet per second (cfs) during dry years, 50 cfs during normal years, and 78 cfs during wet years. Dry, normal, and wet years were defined in the DPR and FES based on reservoir content and runoff predictions at specified dates. The primary purpose of the releases was to establish and maintain a trout fishery in the Dolores River from McPhee Dam to Bradfield Bridge (approximately 12 miles).

Minimum downstream releases were set at 78 cfs from 1984 through 1989, the flow associated with a wet year in the DPR and FES operating criteria. This was partially a result of the hydrology of the Dolores River Basin during this period and partially a result of the project's limited development. During this period, a good trout fishery was established in the river from McPhee Dam to Bradfield Bridge. Precipitation in water year 1989 was very low and the dry trend continued in early 1990. In March 1990 a dry year determination was made in accordance with the operating criteria and the downstream release was set at 20 cfs for the first time in the Project's operating history.

After several meetings and negotiations between Reclamation, Project water users, Trout Unlimited, and Colorado Division Of Wildlife (CDOW), a short-term solution to the low flows was achieved. An agreement between Reclamation and DWCD was reached for the release of an additional 6,000 acre-feet (AF) of Project water to be released downstream from the reservoir through October 1990. Releases were increased to 35 cfs on June 15, 1990, and to 50 cfs by June 20, 1990, to minimize adverse effects on the trout fishery. On September 4, 1990,

releases were reduced to 31 cfs until October 31, 1990.

An interim operation agreement for operation of McPhee Dam from November 1, 1990 through October 31, 1993 (subsequently extended through the present) was executed between Reclamation and the DWCD. The interim agreement provided for alternative dam operation until a long-term solution to the water release and trout fishery issue could be developed and implemented. From November 1, 1990, to the present, McPhee Reservoir has been operated according to the Interim McPhee Dam and Reservoir Operations Agreement (IOA), as amended. Key elements of the current IOA related to water releases for fish and wildlife purposes to the Dolores River are:

- An interim pool of up to 29,300 AF available for release each water year (November 1 to October 31). The 29,300 AF volume is comprised of: (1) 25,400 AF reserved for fish and wildlife purposes; (2) up to 3,900 AF of senior downstream water rights. (After October 31, 1993, 800 AF of water reserved for Totten Reservoir and included in previous versions of the IOA was not available for downstream release.)
- Water releases will be made by the DWCD under direction from Reclamation and in coordination with other federal and state agencies and local interests for fish and wildlife purposes downstream of McPhee Dam.
- No deduction would occur from the interim pool at any time Reclamation directs a spill release from McPhee Reservoir.
- The interim managed pool would not share shortages occurring to Project irrigation water users.

Figures 3 and 4 depict water releases from McPhee Reservoir in 1990 (using the DPR/FES water release criteria) and releases from 1991 through October 1995 (using the interim managed pool). Note that periods of spills are indicated in a darker shade. Figure 4 shows that the interim managed pool allowed releases to the Dolores River to be maintained in the 60 to 70 cfs range or higher during the critical summer months, and at 30 cfs or higher during the winter.

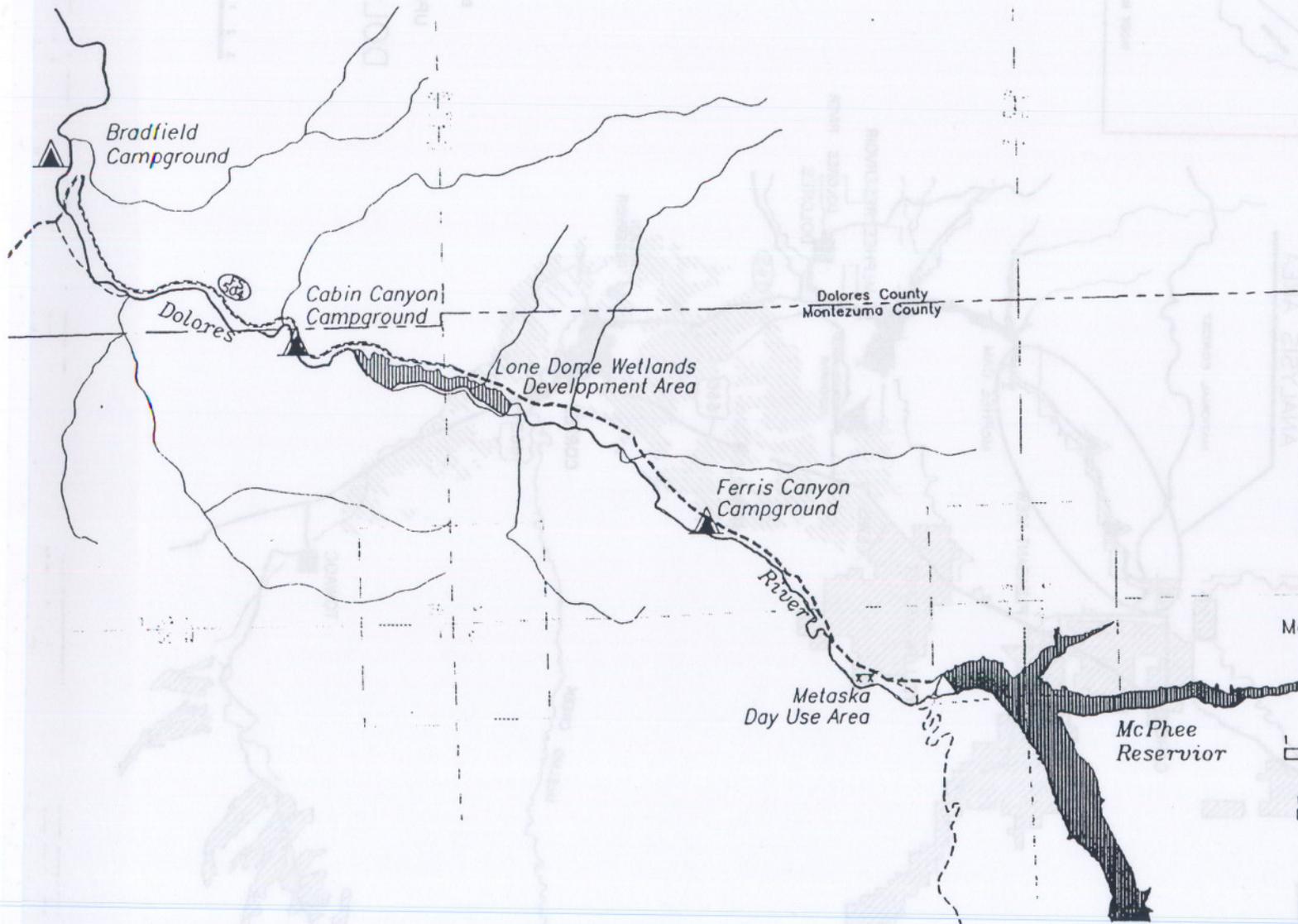
Since late 1990, Reclamation has been coordinating with Project water users, Trout Unlimited, CDOW, the U.S. Fish and Wildlife Service (USF&WS), the Bureau of Land Management (BLM), the U.S. Forest Service (USFS) and other interested individuals and groups to identify a long-term solution. A Biology Committee comprised of representatives from Reclamation, CDOW, USF&WS, USFS, BLM and Trout Unlimited (TU) was established to administer the pool of water reserved for downstream use and to recommend biological studies to determine the flow requirements for a coldwater fishery. Reclamation, CDOW, and the USFS conducted the studies. Reclamation also reviewed the Project hydrology and the 1977 Project operation study used to evaluate the Project water supply and to allocate Project water. This review revealed a discrepancy in the volume of Project water reserved by the United States for downstream fish and wildlife purposes and the actual volume of Project water that would be required to meet the downstream DPR/FES release criteria.

The 1977 Project operation study simulates Project operation on a monthly basis for the period 1928 through 1973. During the study period, the minimum release from McPhee Dam was 78 cfs in 13 years (28%), 50 cfs in 23 years (50%), and 20 cfs in 10 years (22%). These releases were made up of spills (water excess to the Project), water released to satisfy senior downstream water rights, and Project water released from storage. The study indicated that the average annual amount of Project water required to be released from storage to make these flows was 25,400 AF. Because the operation study is a monthly model, it is not possible to simulate managed releases in place of spills. The model allows the reservoir to fill and spill in an uncontrolled manner. This results in much shorter spill periods with higher flows than would occur in actual operation. To compensate, the model did not simulate releases of 78 cfs during wet years but released 50 cfs during both normal and wet years and assumed the extra water needed for the higher flows would be offset by the longer periods of managed releases in place of spills (longer periods when no Project water was required to be released from storage). However, this assumption is probably not valid. When minimum releases downstream were increased from 50 cfs to 78 cfs during wet years, the average annual volume of Project water required to meet the downstream criteria was increased to 29,300 AF. This results in a discrepancy of 3,900 AF between the volume of Project water reserved by the United States for downstream purposes and the volume of Project water required to meet the DPR/FES downstream release criteria.

## E. SCOPE OF PROPOSAL AND THIS DOCUMENT

The scope of this EA is limited to evaluating the effects of the proposed action and no action alternatives. If the EA indicates that the consequences of implementing the proposed action do not have a significant impact on the human environment, a Finding Of No Significant Impact will be prepared. If the EA indicates that the proposed action constitutes a major federal action having a significant impact on the quality of the human environment, a Notice of Intent to prepare an EIS will be prepared and published in the *Federal Register*.





- Campground
- Day Use Area
- Stock Trailing Driveway

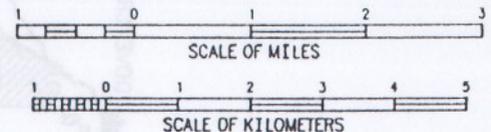
UNITED STATES  
 DEPARTMENT OF THE INTERIOR  
 BUREAU OF RECLAMATION  
 UPPER COLORADO REGION

## DOLORES PROJECT

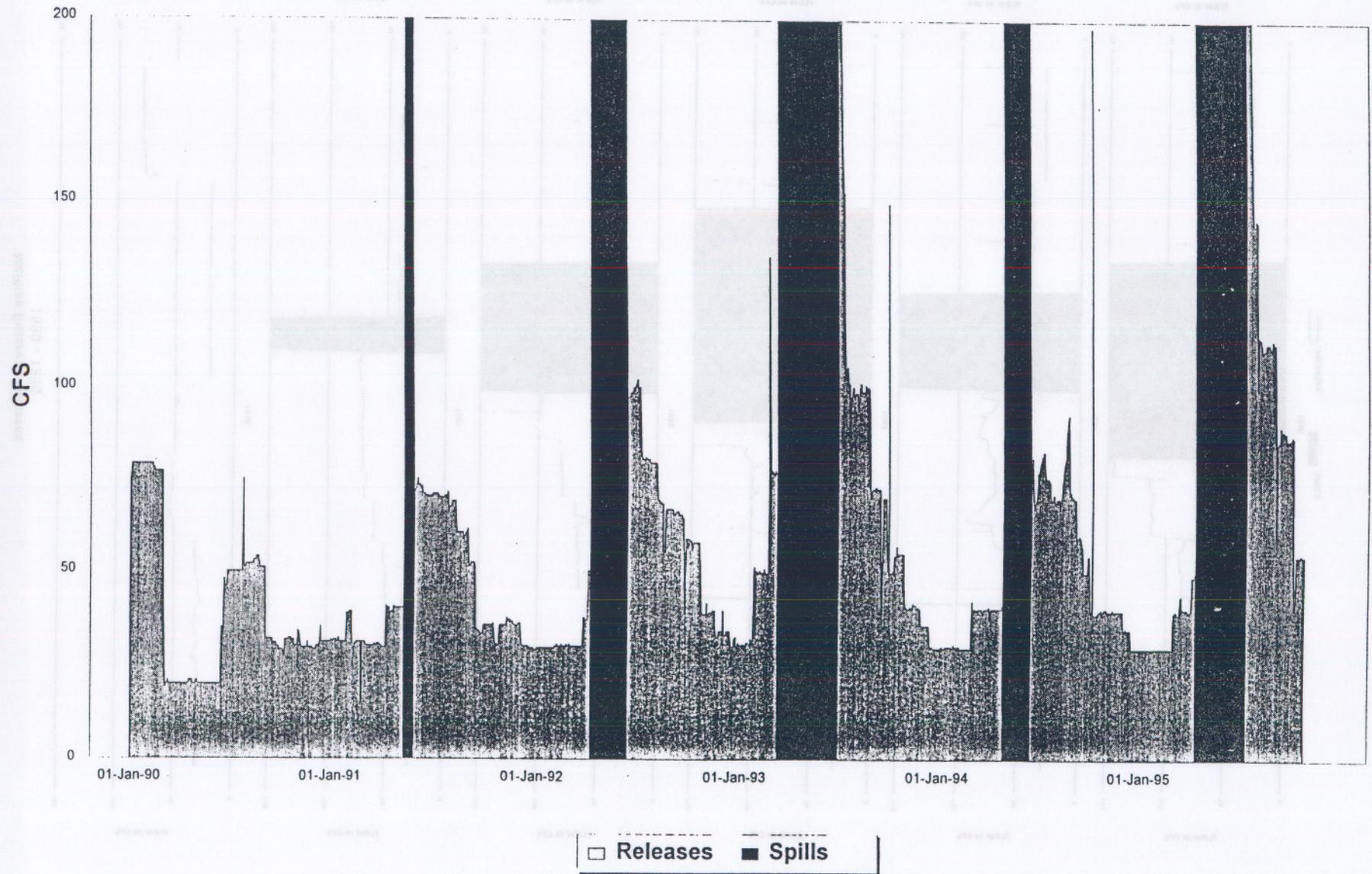
COLORADO

### DOLORES RIVER FROM McPHEE DAM TO BRADFIELD BRIDGE

71-406-1900  
 FEBRUARY 1994



# McPhee Reservoir Releases 1990 - 1995



McPhee Reservoir Releases  
1990 - 1995

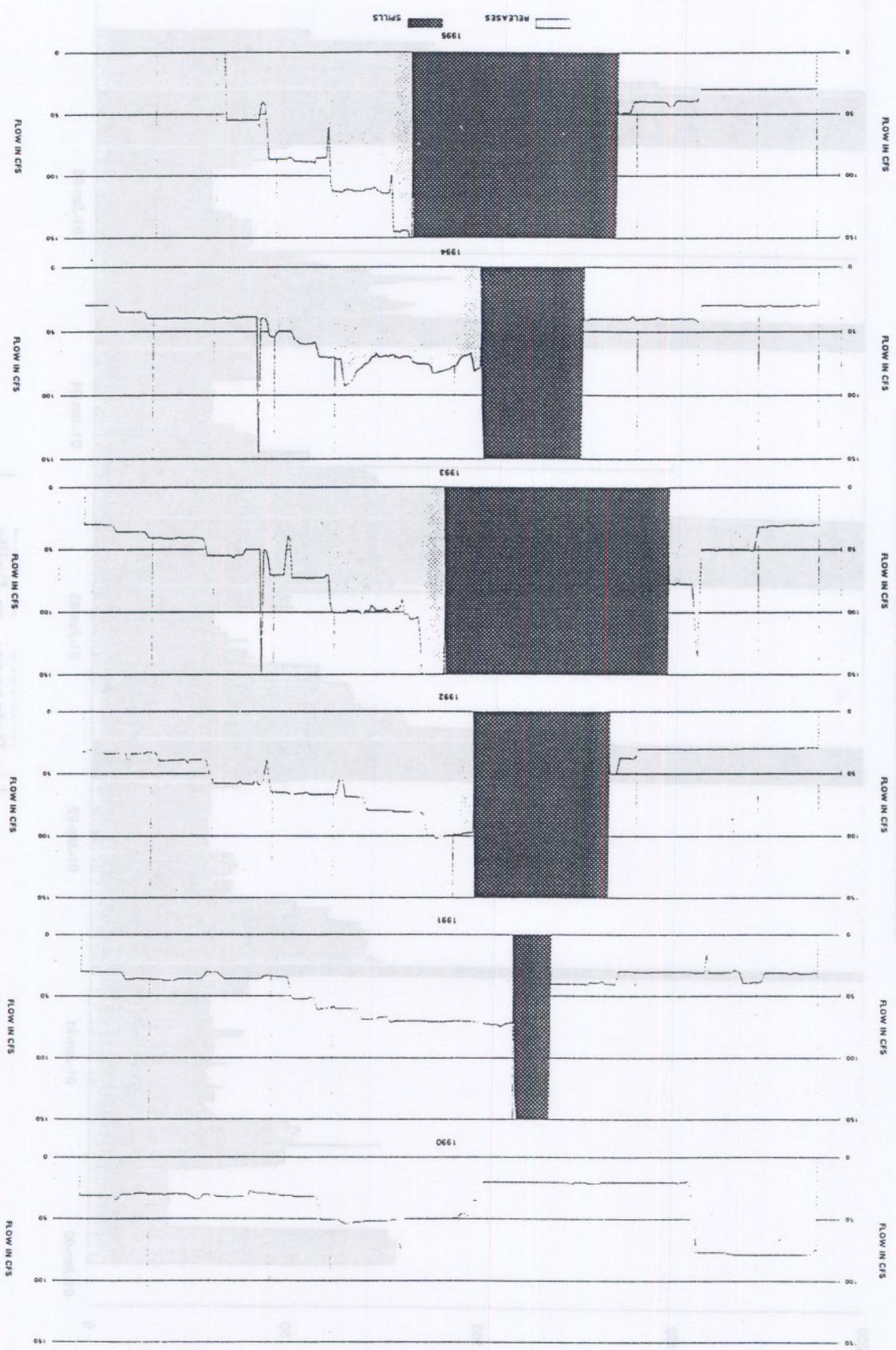


Figure 4

McPhee Reservoir Releases  
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McPhee Reservoir Releases

**C. SIGNIFICANT ENVIRONMENTAL RESOURCES**

Reclamation identified, through a scoping process and public involvement (described in Chapter V), the significant environmental resources that could be impacted (either adversely or beneficially) by the proposed action. The impacts of the proposed action on Federally listed threatened and endangered species are addressed in the attached Biological Assessment. The analysis of impacts in Chapter III focuses on the following resources:

1.	Aquatic resources of the Dolores River downstream from McPhee Reservoir.	Aquatic Resources
2.	Wildlife associated with the Dolores River downstream from McPhee Reservoir.	Wildlife
3.	Wetland or riparian areas associated with the Dolores River downstream from McPhee Reservoir.	Wetland and Riparian Areas
4.	Water quality in the Dolores River downstream from McPhee Reservoir.	Water Quality
5.	Water supply of the Dolores Project and of non-project water users.	Water Supply
6.	Effects on Indian Trust Assets.	Indian Trust Assets
7.	Power generation.	Hydroelectric Power Generation
8.	Recreational opportunities, activities and facilities downstream from McPhee Reservoir associated with the Dolores River.	Recreation
9.	Cultural resources along the Dolores River downstream from McPhee Reservoir.	Cultural Resources

## D. SUMMARY OF IMPACTS

The predicted impacts of the proposed action and no action are summarized below.

	PROPOSED ACTION	NO ACTION
Aquatic Resources	Would sustain a coldwater fishery at least to the Bradfield Bridge area. Would beneficially affect the native fishery.	Would periodically adversely affect the coldwater and native fishery
Wildlife	No significant effect.	No significant effect.
Wetland and Riparian Areas	No significant effect.	No significant effect.
Water Quality	No affect on water chemistry or sediment loading. Would maintain suitable water temperature to sustain a coldwater fishery to at least the Bradfield Bridge area.	No affect on water chemistry or sediment loading. Would not maintain suitable water temperature to sustain a coldwater fishery to Bradfield Bridge during designated dry years or average years.
Water Supply	Would slightly decrease the Project water supply for irrigation. Would not affect the Project M&I water supply or non-project water supplies with rights senior to the Project. Would increase the Project water supply for fish and wildlife purposes.	May slightly decrease the Project water supply for irrigation from the supply presented in the DPR. Would not affect the Project M&I water supply, Project fish and wildlife water supply, or the non-project water supply.
Indian Trust Assets	Would slightly decrease the Project water supply for irrigation. Would not affect the Project M&I water supply or the Project fish and wildlife water supply for the Ute Mountain Ute Tribe. Would slightly decrease the potential Project return flows to the San Juan Basin. Would not affect non-project water supplies.	May slightly decrease the Project water supply for irrigation from the supply presented in the DPR. Would not affect the Project M&I water supply, or the Project fish and wildlife water supply for the Ute Mountain Ute Tribe. Would not significantly affect the potential Project water return flows to the San Juan Basin and would not affect non project water supplies.
Hydroelectric Power Generation	No significant effect.	No significant effect.
Recreation	Would increase fishing and other activities related to fishing. Would not significantly affect rafting. Would not affect other recreational activities.	Would periodically adversely affect fishing and related activities. Would not significantly affect rafting. Would not affect other activities.
Cultural Resources	No effect.	No effect.

## CHAPTER III AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

### A. INTRODUCTION

Descriptions of the site and setting of McPhee Reservoir and the Dolores River downstream from McPhee Dam are contained in the Final Environmental Statement (INT FES 77-12) and Definite Plan Report for the Dolores Project (Reclamation 1977), the Fish and Wildlife Analysis for the Dolores Water Project (CDOW, 1974), the Dolores River Wild and Scenic River Study Report (Depts. of Agriculture and Interior, Colo. Dept. of Nat. Resources, 1976), the Draft Plan of Study for the Dolores Project Resources Optimization Study (Reclamation 1990), the Dolores River Corridor Management Plan (BLM, 1990), the Dolores River Instream Flow Assessment Project Report (BLM, 1990), and the Dolores River Native Fish Habitat Suitability Study (Bio/West, Inc., 1992). The areas or resources potentially affected by the proposed action and no action alternative are generally confined to the river channel and floodplain of the Dolores River downstream from McPhee Dam. Emphasis has been placed on the first 12 miles of the river downstream from McPhee Dam to the Bradfield Bridge vicinity because this reach was expected to support a cold water sport fishery in the original DPR/FES. This chapter addresses in detail the significant environmental issues/resources described in Chapter I potentially affected by the proposed action and no action alternative. Other issues or resources are also briefly described.

### B. AQUATIC RESOURCES

#### AFFECTED ENVIRONMENT

**Dolores River Trout Fishery** - The tailwater trout fishery in the Dolores River downstream of McPhee Dam was established soon after the dam was closed in 1984. Reclamation's FES identified a 12 mile section of the Dolores River immediately downstream of McPhee Dam, which would provide suitable habitat for the development of a good quality cold water (trout) fishery. This section of river was initially stocked by the Colorado Division of Wildlife (CDOW) in 1984 with fingerlings of the following trout species:

- Brown (*Salmo trutta*)
- Cutthroat (*Salmo clarki*)
- Rainbow (*Oncorhynchus mykiss*).

The brown trout population is self sustaining. While successful natural reproduction of rainbow trout does occur, natural reproduction is supplemented by the annual stocking of fingerling rainbow trout. Concurrent with the establishment of the fishery, the CDOW restricted angling methods within the quality trout section to fly fishing and artificial lures only and designated the 12 mile reach as a catch-and-release fishery. The CDOW initiated annual population monitoring studies of the fishery in 1986. Information gained from these studies over several years provides a means to evaluate changes in the population structure and density as well as providing an indicator of the relative quality and quantity of aquatic habitat.

From closure of the dam in 1984 through February of 1990, releases to the river were 78 cfs or greater. Overall, the trout fishery probably reached the 78 cfs carrying capacity of the river in 1988 and 1989 when a combined estimated biomass of over 44.6 lb/ac of trout occurred throughout the quality trout section.

In March 1990, a dry year was designated by Reclamation and flow was reduced to 20 cfs. This flow was maintained through June 14, 1990, when an additional 6,000 AF of water was obtained by Reclamation and flows were increased

to 30 cfs immediately, 50 cfs on June 20, and remained at 50 cfs for the remainder of the summer. Subsequent sampling of the river in the fall of 1990 and twice in 1991 indicated that the low flows during 1990 caused a significant loss to the trout fishery. Estimates of trout biomass made in the fall of 1991 were about 11 lb/ac throughout the quality trout section. The loss was attributed to a combination of elevated water temperatures in the lower portion of the quality trout section and a severe reduction in available physical habitat.

From November 1990 to the present, McPhee Reservoir has been operated under an interim operating agreement as described in the Background section of this document. The trout fishery had recovered significantly by the fall of 1992. Biomass estimates made in 1992 and in 1993 indicated the river contained 40 and 64 lb/ac of trout, respectively. However, the biomass estimate made in 1993 included fish that were lost from the reservoir the previous spring during a spill release. Agency biologists agree that 64 lb/ac represents a much higher biomass of trout than the long-term carrying capacity of the river under the interim operations.

**Dolores River Native Fishery** - Since the closure of McPhee Dam, the most comprehensive study of the native fishery was conducted in 1991 and 1992 by Bio/West Inc. During the course of this study, six native fish species were collected from McPhee Dam downstream to the confluence with the Colorado River. The species were:

- Colorado squawfish (*Ptychocheilus lucius*){federally protected}
- Roundtail chub (*Gila robusta*)
- Speckled dace (*Rhinichthys osculus*)
- Flannelmouth sucker (*Catostomus latipinnis*)
- Bluehead sucker (*Catostomus discobolus*)
- Mottled sculpin (*Cottus bairdi*).

Colorado squawfish, the only endangered specie collected during this survey, were found within 1.25 miles of the confluence with the Colorado River. It was presumed these fish were not year-long inhabitants of the Dolores River, but rather temporary migrants from the Colorado River. However, thirteen potential spawning sites for Colorado squawfish were identified and it was concluded the Dolores River provided suitable habitat for the reintroduction of this species and the razorback sucker (*Xyrauchen texanus*), also federally protected.

Over the two year collection period native fishes comprised 19% of all fish collected, a relatively high percentage compared to many other rivers in the Upper Colorado River Basin. Evidence of natural reproduction by all of the five unprotected native fish species listed above was found. Roundtail chub was the fifth most common of the twenty species collected during the course of the study. Evidence of roundtail chub reproduction was found in the CDOW surveys of 1990-1994 at the permanent sampling station below the Dove Creek Pumps. Young-of-the-year roundtail chubs were collected in relatively large numbers in both 1991 and 1992. Predation from non-native fishes was not thought to be a significant limiting factor in the system. The Bio/West Inc. study concluded that timing, duration and magnitude of spills from McPhee Dam coupled with maintaining adequate base flows in the river were important in maintaining the downstream native fishery. The study recommended that 50 cfs be adopted as a minimum flow based on the original operating criteria.

**McPhee Reservoir Fishery** - McPhee Reservoir provides habitat for numerous fish species. Although the CDOW initially planned to manage the reservoir as a trout fishery, their fishery management plan for the reservoir changed to include warm water species and Kokanee salmon. Initially, only rainbow trout were stocked in the reservoir. However, brown and cutthroat trout that exist in the Dolores River upstream are also found in the reservoir in low numbers. Fish species stocked in the reservoir include the following:

- Largemouth bass (*Micropterus salmoides*)
- Smallmouth bass (*Micropterus dolomieu*)
- Bluegill sunfish (*Lepomis macrochirus*)
- Black crappie (*Pomoxis nigromaculatus*)

Channel catfish (*Ictalurus punctatus*)  
Kokanee salmon (*Oncorhynchus nerka*)  
Rainbow Trout (*Oncorhynchus mykiss*)

Other fish species present, but not stocked by CDOW or USF&WS include the following:

Yellow perch (*Perca flavescens*)  
Black bullhead (*Ictalurus melas*)  
Green sunfish (*Lepomis cyanellus*)  
White sucker (*Catostomus commersoni*)  
Flannelmouth sucker (*Catostomus latipinnis*)  
Bluehead sucker (*Catostomus discobolus*)

Reservoir fluctuations are related to spring runoff, releases to the Dolores River, and irrigation and municipal and industrial water demands supplied by releases through Great Cut Dike and the Dolores Tunnel. Losses to the reservoir fishery are associated with the method of spill releases. Use of the dam spillway in 1993, required by ongoing repair of the outlet works, resulted in the loss of a number of trout and Kokanee salmon from the reservoir. Managed spill releases through the main outlet works have resulted in far fewer fish being lost downstream.

## ENVIRONMENTAL CONSEQUENCES

### Trout Fishery

**Proposed Action** - Aquatic studies concluded that during summer periods a flow of 50 cfs or less does not provide suitable water temperatures during the summer months for trout throughout the 12 mile section. It was also determined that flows of 50 cfs or less does not provide sufficient depth of water in several riffle areas to allow trout to move throughout the system. It was estimated that 70 cfs flows would be necessary to provide suitable temperatures and adequate depth in riffle areas for migration during the summer months and somewhat lower flows would be adequate during the spring and fall due to lower temperatures. Winter flows of 30 cfs during the study period did not appear to detrimentally affect the trout fishery. However, there is a possibility of icing problems developing at low flows in severe winters but management flexibility would allow these problems to be corrected. Prolonged severe drought periods will result in project water shortages. The 46-year project operation study indicates droughts that would produce significant shortages and adversely effect the trout fishery would occur in about 4% of the years. Additional hydrological records indicate that significant shortages would occur in less than 3% of the years and statistical analysis of the data indicates that the occurrence of significant shortages would be even less. Releases in anticipation of spills (controlled release of water which would be excess to available storage space in the reservoir) have occurred in all years of the interim operation. Therefore, the adequacy of a 30,100 AF or 29,300 AF fish pool has never been evaluated.

Overall, the data clearly indicates that pool management is a much more effective way to maintain the tailwater trout fishery in the Dolores River. In a report provided to Reclamation in 1993 by the CDOW, the fishery researcher concluded that the "...Dolores River and the aquatic biota that support the trout fishery downstream from McPhee Dam may well be in the healthiest condition since reservoir operations began in 1984." (Nehring 1993).

Implementation of the proposed action would provide flows in the river to improve habitat for trout in the Dolores River below McPhee Dam. Sufficient water would be available to meet the summer flow requirements. The management flexibility provided by the pool would allow the reserved water to be released in the best way possible to benefit the downstream fishery. Under this alternative, both the quantity and quality of habitat would be increased from the existing conditions and from the conditions provided by the no action alternative. The biomass of trout in the river would be expected to increase.

**No Action** - The No Action Alternative would result in periodic loss of much of the trout fishery below the dam during years designated as "dry" with 20 cfs releases under the DPR/FES criteria (approximately 20 % of the time).

During years designated as "normal" with 50 cfs releases under the DPR/FES criteria (approximately 50% of the time) both the quantity and quality of trout habitat in the river below the dam would be adversely effected.

### Native Fishery

**Proposed Action** - Implementation of the proposed action would benefit downstream populations of native fishes by eliminating the extreme year round low flows associated with a "dry" year designation.

**No Action** - Native fish habitat would continue to be adversely affected during designated "dry" years.

### McPhee Reservoir

Implementation of either alternative would not affect reservoir fishery habitat.

## C. WILDLIFE

### AFFECTED ENVIRONMENT

Wildlife species in the Dolores River Canyon below McPhee Reservoir which are closely associated with the aquatic environment include the following:

- Beaver (Castor canadensis)
- Muskrat (Ondatra zibethicus)
- River otter (Lutra canadensis)
- Mink (Mustela vison)
- Raccoon (Procyon lotor)

Beaver, muskrat, and raccoon are common in the area. Mink are considered to be rare. The river otter is listed as a federal category 2 species and listed as endangered by the State of Colorado. River otter were believed to be extirpated from Colorado earlier in the century. Otter were reintroduced to the Dolores River drainage in 1988 and are currently thriving. Food habitat studies of river otters in the Dolores River show that crayfish (Orconectes virilis) constitute a major portion of their diet. Typically, otters consume the most easily caught prey species available, which is the crayfish in the Dolores River. In winter months, otters prey extensively on channel catfish (Ictalurus punctatus) and carp (Cyprinus carpio) in the lower Dolores River.

Numerous waterfowl species regularly use the river. The first few miles of the river downstream from the dam appear important due to greater availability of slack water. This area also tends to remain relatively ice-free during the winter when open water becomes a limiting factor to waterfowl use. Waterfowl attracted to this open water provide an attractive prey base for wintering bald eagles. Mergansers (Mergus merganser americanus) use reaches where small fish are readily available. "Puddle ducks" such as mallards (Anas platyrhynchos), gadwall (Anas strepera) and teal (Anas spp.) use slack water areas, beaver ponds, or inundated floodplain wetlands for feeding on aquatic plants and invertebrates, or for resting. Some waterfowl nesting occurs within the floodplain.

Bald eagles overwinter in the area and regularly use the reach of the river just downstream from McPhee Dam. Since closure of the dam, as many as thirty eagles have been reported in this area. The eagles are most probably attracted by waterfowl and fish as food sources.

Numerous bird species are dependent on the tree and shrub habitats of floodplain riparian and wetland communities. These habitats typically support among the highest diversity of species use of all habitats found in the southwest. The following species feed on aquatic river life, are dependent on dead and dying trees of the riparian cottonwood forest for nest sites, or are closely tied to riparian shrub communities for nesting and feeding:

Belted Kingfisher (Megasceryle alcyon)  
 Great blue heron (Ardea herodias treganzai)  
 Dippers (Cinclus mexicanus unicolor)  
 Woodpeckers (Picidae family)  
 Swallows (Hirundinidae family)  
 Black-Capped Chickadees (Parus atricapillus septentrionalis)  
 Flycatchers (Tyrannidae family)  
 Warblers (Parulidae family)  
 Sparrows (Fringillidae family)

## ENVIRONMENTAL CONSEQUENCES

**Proposed Action** - Implementation of the proposed action would have positive benefits for aquatic life throughout the upper reaches of the river and, therefore, the wildlife species dependent on aquatic life for food. Species dependent on floodplain riparian and wetland communities for nesting and feeding would not be significantly affected although the higher flows during the summer and the elimination of extended periods of 20 cfs release may benefit the riparian zone.

There is a potential for increased ice formation in the river near the dam due to lower winter flows than would occur during "normal" or "wet" years under the no action alternative. This would result in less open water being available for waterfowl during winter. However, the proposed action would allow the management flexibility to increase flows during the winter if icing of the river becomes a problem. River icing would not significantly affect waterfowl or bald eagles. There would higher winter flows and less icing than during designated "dry" years under the no-action alternative.

**No Action** - Year round flows of 20 cfs during designated "dry" years would adversely affect aquatic life through the upper reaches of the river and, therefore, adversely affect the wildlife species dependent on aquatic life for food. Species dependent on floodplain riparian and wetland communities for nesting and feeding would not be significantly affected. There is a potential for increased ice formation in the river near the dam during designated dry years but waterfowl or bald eagles would not be significantly affected.

## D. WETLAND AND RIPARIAN

### AFFECTED ENVIRONMENT

The Dolores River supports several types of wetland and riparian vegetation communities downstream from McPhee Dam. These include mature cottonwood forests, riparian shrub lands, and emergent wetlands. Due to the relatively narrow floodplain in this portion of the Dolores River, these communities generally occur in narrow bands along the river banks and in old overflow channels and oxbows.

Narrowleaf cottonwood (Populus angustifolia) forests are common along the Dolores River. Cottonwoods form an open to dense overstory with a variety of understory shrubs, grasses, and forbs including:

Skunkbush (Rhus trilobata)  
 Desert olive (Forestiera neomexicana)  
 Bluegrasses (Poa spp.)  
 Brome grasses (Bromus spp.)  
 Rushes (Juncus spp.).

Box elder is present in some habitat niches seemingly more suitable for cottonwoods in portions of the downstream

canyon. Although some mature cottonwoods occur adjacent to the active channel, the denser overstory forests generally occur in old overflow channels and oxbows. These areas have become separated from the active river channel and the trees are dependent on groundwater for survival.

Riparian shrub dominated communities become increasingly common further downstream from McPhee Dam and become the dominant riparian community below Disappointment Creek. The invasion of salt cedar (Tamarix ramosissima) is evident along the Dolores River downstream from the confluence of Disappointment Creek. These shrub communities are generally dominated by coyote willow (Salix exigua) but also include other shrubs such as desert olive and gambel oak (Quercus gambelii). The understory is generally sparse and composed of a variety of grasses and forbs.

Emergent wetland areas are not common in the Project area. Some small communities dominated by wetland grasses, spikerushes (Eleocharis spp.) and rushes (Juncus spp.) occur in small depressions and backwaters. A major feature of the Lone Dome Recreation Area is a cooperative effort by Reclamation and CDOW to create, preserve, and enhance about 75 acres of wetlands. The wetlands are approximately seven miles downstream from McPhee Dam on lands historically irrigated for pasture and hay.

Historically, the wetland and riparian communities along the Dolores River have been affected by livestock grazing and years of low/no flow in the Dolores River during the summer months. Grazing was discontinued on lands administered by the BLM and the USFS along the Dolores River from McPhee Dam to approximately four miles upstream of Slick Rock in the late 1980's. Grazing was discontinued on CDOW's lands at about the same time. McPhee Dam was closed in 1984 and has since provided continuous flows in the Dolores River. In the past 11 years there has been a substantial increase in riparian vegetation along the river.

The lands acquired by the United States were infested with noxious weeds which proliferated in subsequent years due to lack of control measures. The most common noxious plant species include the following:

- Musk thistle (Carduus nutans)
- Canada thistle (Cirsium arvense)
- Russian knapweed (Acroptilon repens)

Attempts to control these infestations have focused on herbicide applications. During the past five years, the USFS has conducted prescribed burns in the Lone Dome area in the fall, followed in the spring with selective herbicide treatment. The BLM has conducted similar eradication efforts in the Bradfield Bridge area and the CDOW has initiated control measures on their lands. Recently, insect predators have also been introduced to combat musk thistle. It is anticipated that the efforts will control the noxious weed problem.

## ENVIRONMENTAL CONSEQUENCES

**Proposed Action** - Implementation of the proposed action may benefit the wetland and riparian habitats by providing higher summer flows in the river, especially during years which would be designed as "normal" or "dry" under the no action alternative

**No Action** - Implementation of the no action alternative may have a minor detrimental effect on the wetland and riparian communities during designated "dry" years.

## E. WATER QUALITY

### AFFECTED ENVIRONMENT

Little water chemistry data is available from the Dolores River below McPhee Dam. However, water chemistry is monitored in the Dolores River immediately before it enters McPhee Reservoir. Data indicates all chemical constituents are well below standard levels for aquatic life established by the United States Environmental Protection Agency and the State of Colorado. Dissolved oxygen content was monitored at several sites in the Dolores River below McPhee Dam during the spring and summer of 1990 during the period of low releases. The oxygen content was found to be suitable for aquatic life in every measurement. The sediment content of the water released from McPhee Dam is normally very low. Tributaries downstream from the dam contribute sediment during spring runoff and after rainfall events.

A major component of water quality related to aquatic life is water temperature. Trout grow and thrive best in water that is 50-65 degrees Fahrenheit. Water temperature has been monitored in 4 location on the river since about 1986. During hot summer days at flows of about 50 cfs or less, the water reaches temperatures of over 70 degrees Fahrenheit upstream of Bradfield Bridge. At flows of about 70 cfs or greater, water temperature will remain below 70 degrees at Bradfield Bridge during hot summer days. The water temperature at Bradfield Bridge has a daily fluctuation of about 20 to 30 degrees Fahrenheit during the summer. Maximum summer water temperature in the river at the Dove Creek Pumping Plant is similar and often lower than the temperature at Bradfield Bridge.

### ENVIRONMENTAL CONSEQUENCES

**Proposed Action** - Implementation of the proposed action would not affect the water chemistry or sediment content of the river. Water of suitable oxygen content for aquatic life would be provided. The proposed action would allow the management flexibility to maintain water of suitable temperature to support a trout fishery to at least the Bradfield Bridge vicinity.

**No Action** - Implementation of the no action alternative would not affect the water chemistry or sediment content of the river. Water of suitable oxygen content for aquatic life would be provided. The no action alternative would maintain water of suitable temperature to support a trout fishery to at least the Bradfield Bridge vicinity in designated "wet" years. During designated "normal" years, water of suitable temperature would be maintained in a large portion of the river from the Dam to Bradfield Bridge but during designated "dry" years, water of suitable temperature would only be maintained in a portion of the river near the dam.

## F. WATER SUPPLY

### AFFECTED ENVIRONMENT

**Project Water** - The Dolores Project supplies an annual average of 90,900 AF of water for the irrigation of about 61,600 acres of land. An annual average of 13,700 AF is supplied to about 26,300 acres of supplemental service land within the MVIC system, 54,300 AF is supplied to about 27,800 acres of full service land in the Dove Creek area and 22,900 AF is supplied to about 7,500 acres of full service land on the Ute Mountain Ute Reservation. An annual supply of 8,700 AF is reserved for municipal and industrial use within the DWCD. An annual average of 27,000 AF of water is reserved for fish and wildlife use and is allocated as follows: 25,400 AF for release to the Dolores River, 800 AF for fish and wildlife purposes in Totten Reservoir, and 800 AF for fish and wildlife purposes within the Ute Mountain Ute Reservation. Prolonged severe drought periods will result in project water shortages. The 46-year project operation study indicates droughts that would produce significant shortages would occur in about 4% of the years. Additional hydrological records indicate that significant shortages would occur in less than 3% of the years

and statistical analysis of the data indicates that the occurrence of significant shortages would be even less.

**Non-Project Water** - Water from the Dolores River is used to irrigate approximately 2,300 acres of land in the Dolores Basin above McPhee Reservoir, and transbasin diversions deliver water to irrigate approximately 42,100 acres of land in the San Juan Basin. The major transbasin irrigation diversions consist of MVIC's diversion of up to 153,400 AF annually from the Dolores River for the irrigation of 37,500 acres of land and for stock watering purposes, and Summit Irrigation Company's diversion from Lost Canyon to supply irrigation water to approximately 4,600 acres of land. Both are senior to the Project. There are other smaller transbasin water users senior to the Project including the municipal, industrial and domestic water rights held by the City of Cortez and the Montezuma Water Company. There are water rights totaling 3,900 AF senior to the Dolores Project downstream from the McPhee Dam.

**Dolores River** - The water supply for the Dolores River below McPhee Dam consists of Project water released from storage, water passed through the reservoir to satisfy senior downstream water rights, and water released in anticipation of spills and/or actual spills. The DPR/FES criteria for minimum releases to the river specifies either 20, 50, or 78 cfs during non-spill periods. These flows consist of Project water released from storage and water passed through the reservoir to satisfy senior downstream rights. Water released in anticipation of spills and during actual spills averages about 76,000 AF. Since November 1990, McPhee Reservoir has been operated under an interim operating agreement which provides a pool of Project water in the reservoir available for release as directed by the Biology Committee.

## ENVIRONMENTAL CONSEQUENCES

### Project Water

**Proposed Action** - Implementation of the proposed action would not affect the Project M&I water supply, the 800 AF of water reserved for fish and wildlife purposes by the Ute Mountain Ute Tribe, the 800 AF of fish and wildlife water reserved for use in Totten Reservoir. The Project water supply for irrigation would be slightly decreased from the supply presented in the DPR. During normal and dry periods, McPhee Reservoir would operate at slightly lower elevations and provide less carry-over storage for use during succeeding years. Also, more water would be released downstream to the Dolores River during dry period. This will result in increased incidents of shortages to irrigators and increased severity of shortages during extended drought periods. During wet periods, McPhee Reservoir would operate at slightly higher elevations and provide more carry-over storage for use during succeeding years. However, the long term average annual water supply available for irrigation would only be reduced approximately 1% as compared to the no action alternative.

**No Action** - Implementation of the no action alternative would slightly decrease the Project water supply for irrigation from the supply presented in the DPR due to the discrepancy in the 1977 Project operation study discussed in the background section of this document. There would be no affect on the Project M&I water supply, the 800 AF of water reserved for fish and wildlife purposes by the Ute Mountain Ute Tribe, the 800 AF of fish and wildlife water reserved for use in Totten Reservoir.

### Non-Project Water

**Proposed Action** - Implementation of the proposed action would not affect non-project water users with water rights senior to the project.

**No Action** - Implementation of the no action alternative would not affect non-project water users with water rights senior to the project.

## Dolores River

**Proposed Action** - Implementation of the proposed action would provide managed releases from a pool of Project water in McPhee Reservoir to the Dolores River during non-spill periods. Flows in the river would fluctuate seasonally. There would be a slight decrease in the volume of water released in anticipation of spills from the volume described in the DPR/FES and more water released from storage during what would have been "dry" years under the DPR/FES release criteria. The long term average annual total volume of water released to the river will be slightly greater than predicted in the DPR/FES.

**No Action** - Operation of McPhee Reservoir would return to the downstream release criteria directed by the DPR/FES. Due to the discrepancy in the 1977 Project operation study discussed in the background section of this document there would be a slight decrease in the volume of water released in anticipation of spills from the volume described in the DPR/FES. The long term average annual total volume of water released to the river will be slightly greater than predicted in the DPR/FES.

## G. INDIAN TRUST ASSETS

The United States has a trust responsibility to protect and maintain rights reserved by or granted to American Indian tribes by treaties, statutes, and executive orders. Indian Trust Assets (ITA) are legal interests in property held in trust by the United States for Indian tribes or individuals, or property that the United States is otherwise charged by law to protect. Examples of resources that could be ITAs are lands, minerals, hunting and fishing rights, water rights, and instream flows. Reclamation's ITA Policy was signed by the Commissioner on July 2, 1993. The policy states that Reclamation will carry out its activities in a manner which protects ITAs and avoids adverse impacts when possible. Reclamation has identified two Indian tribes as potentially affected by the proposed action and alternatives, the Ute Mountain Ute Tribe and the Navajo Nation.

No Native American religious concerns have been identified in connection with this proposal.

## AFFECTED ENVIRONMENT

**Ute Mountain Ute Tribe** -The Ute Mountain Ute Tribe has an annual Project reserved water right of 25,100 AF resulting from the 1986 Colorado Ute Water Rights Settlement Agreement. The water is allocated as follows: 23,300 AF for irrigation of approximately 7,500 acres of tribal land south of Sleeping Ute Mountain, 1,000 AF for M&I use in the Towaoc area, and 800 AF for fish and wildlife development. Project facilities to deliver the Project irrigation and M&I water are complete. Both the San Juan River and McElmo Creek flow through the reservation. The tribe also has reserved water rights in the main stem of the San Juan River (10 cfs) and McElmo Creek (1 cfs).

**Navajo Nation** - The Navajo Nation is located south and west of the Ute Mountain Ute Reservation and the Dolores Project area. The San Juan River flows through parts of the Navajo Nation and forms the northern border of the Nation from near the confluence of Montezuma Creek to the confluence with the Colorado River. McElmo Creek and Montezuma Creek also flow through the Nation. The San Juan River, McElmo Creek, and Montezuma Creek receive irrigation return flows from the Dolores Project.

## ENVIRONMENTAL CONSEQUENCES

### Ute Mountain Ute Tribe

**Proposed Action** - Implementation of the proposed action would slightly decrease the Project water supply for

irrigation from the supply presented in the DPR. During normal and dry periods, McPhee Reservoir will operate at slightly lower elevations and provide less carry-over storage for use during succeeding years. Also, more water would be released downstream to the Dolores River during dry period. This will result in increased incidents of shortages to the irrigation water supply and increased severity of shortages during extended drought periods. During wet periods, McPhee Reservoir would operate at slightly higher elevations and provide more carry-over storage for use during succeeding years. However, the long term average annual water supply available for irrigation would only be reduced by approximately 1% as compared to the no action alternative. There would be no affect on the M&I water supply or the fish and wildlife development water supply.

Potential future return flows to McElmo Creek, Montezuma Creek, and the San Juan River would be slightly decreased.

**No Action** - Implementation of the no action alternative would slightly decrease the Project water supply for irrigation from the supply presented in the DPR due to the discrepancy in the 1977 Project operation study as presented in the background section of this document.

#### **Navajo Nation**

**Proposed Action** - Implementation of the proposed action would slightly decrease potential future return flows to McElmo Creek and the San Juan River.

**No-Action** - Implementation of the no action would have no perceivable affect on the Navajo Nation.

## **H. HYDROELECTRIC GENERATION**

### **AFFECTED ENVIRONMENT**

A 1.35 megawatt baseload powerplant is located on the outlet works of McPhee Dam and a 12.2 megawatt baseload powerplant is located on the initial reach of the Towaoc Canal. The power produced enters the Colorado River Storage Project System for distribution to the points of use. Under the DPR/FES operating criteria, an average of 37,488,000 kilowatt hours (kWh) of energy is produced annually, about 22,498,000 kWh in excess of the Project's requirement.

McPhee Dam Powerplant operates year-round using fishery releases and water released in anticipation of spills. The plant contains two turbines designed for variable head, one designed for optimum flow of 25 cfs and one designed for optimum flow of 50 cfs although each can be operated over a limited range of flows. The turbines can be operated separately or together to optimize power generation over a large range releases. Water is supplied to the turbines from the selective level outlet works. Under the DPR/FES criteria, the powerplant would generate an average of 7,170,000 kWh annually.

The Towaoc Canal Powerplant operates from about mid-April to mid-October using irrigation water destined for use by the MVIC and the Ute Mountain Ute Tribe. The plant consists of one generating unit designed for a constant head and fluctuating flows of about 40 to 475 cfs. The powerplant generates an average of 30,318,000 kWh annually.

## ENVIRONMENTAL CONSEQUENCES

**Proposed Action** - Implementation of the proposed action will not significantly affect power production at either the McPhee Dam Powerplant or Towaoc Canal Powerplant.

**No Action** - Implementation of the no action alternative would result in both powerplants operating as designed.

## I. RECREATION

### AFFECTED ENVIRONMENT

Several types of recreational activity occur along the Dolores River downstream from McPhee Dam. The most popular activities are fishing and rafting. Other activities include camping, hiking, photography and nature watching.

### FISHING

Fishing is the primary recreational activity occurring on the reach of the Dolores River from McPhee Dam to Bradfield Bridge. Fishing is also popular downstream to the Dove Creek Pump Plant in conjunction with float trips and increasingly with hike-in or pack-in guided trips. The Dolores River tailwater fishery gained regional and nationwide recognition in the first few years after the dam was built. The significant loss of fish due to low releases (20 cfs) in 1990 caused fishing use to decline drastically. Fishing has increased with recovery of the fishery since 1991.

A CDOW creel census during June-August 1990 (a period of extremely low flows) indicated approximately 1,500 angler days, with a total visitation of about 6,000 (Japhet, 1994). A voluntary creel census station has been in place at Bradfield Bridge since 1987; however, response rates are low. The responses may contain valuable information concerning the quality of the fishing experience. During the latest census period of October 1992 to August 1993, 52% of the 132 respondents were from out of state. This compares favorably with the results of another 1990 creel census, which indicated that 57% of respondents were from out of state. USFS angler census figures for 1993 indicate that 2,044 individuals fished the reach of river down to Bradfield Bridge (Stewart, 1993); of these, 309 were clients of outfitters, and 1,735 were members of private trips.

### RAFTING

White water boating opportunities on the Dolores River were adversely affected by the Dolores Project. As a mitigation measure, Reclamation and DWCD are committed to manage water excess to the Project (spills) to provide maximize boating opportunities consistent with project purposes. Reclamation meets annually in the spring with white water boaters and other interested parties to plan spill releases based on runoff forecasts. Boating releases are scheduled on consecutive days and announced to the public in advance in an effort to make the best possible use of available excess water.

Very little rafting occurs on the reach of the Dolores River from McPhee Dam to Bradfield Bridge. Though the USFS has issued a few permits to outfitters allowing them to float this stretch of river in conjunction with fishing trips, no permits have been issued to commercial rafting companies.

Rafting is very popular on the Dolores River downstream from Bradfield Bridge to as far as Bedrock. The differing character of the river in two distinct reaches, one from Bradfield Bridge to Slick Rock (upper) and the other from Slick Rock to Bedrock (lower), results in different types of rafting use on these reaches.

The upper reach contains stretches of white water and is favored by rafters wanting to experience this type of river

trip. The scenery in this section is also an attraction as the river is located in a red rock canyon with the vegetative community dominated by ponderosa pine and pinyon-juniper. It has been described as being one of the most scenic floating reaches in the United States. In the past, the most frequently used watercraft on this reach have been medium-to-larger sized (12-16 feet) inflatable rafts. However, smaller watercraft such as kayaks and inflatable canoes are used especially during periods of lower flows. These smaller craft are often combined with fishing trips by both private and commercial boaters.

The lower reach contains a riverbed made up of fewer rocks and a gentler gradient. The scenic values of this stretch are also a major attraction, with the canyon being even deeper than in the upper reach. Rafts are used on this stretch, but open canoes have also been very popular. This experience is attractive to those users not possessing or not wishing to exercise advanced paddling skills, but desiring a more relaxing trip. Float trips along this stretch are generally not combined with fishing trips due to the scarcity of gamefish in this reach.

The BLM manages the river corridor downstream from Bradfield Bridge, and has the responsibility for issuing permits for river trips and maintaining use records for the river. Below is a summary of the 1992 to 1994 boating seasons. Boating season is considered to be consecutive days of releases of 800 cfs or greater.

Year	Season	Number of Days	User Days
1992	April 17 to June 9	54	5,042
1993	April 9 to June 27	80	8,779
1994	May 3 to June 11	40	6,476
1995	April 18 to July 11	85	13,769

#### Other Recreational Activities

The Lone Dome Recreation Area extends along the river from McPhee Dam to the BLM campground below Bradfield Bridge. It was established as mitigation for construction of the dam. Land ownership in the Recreation Area is a mixture of private, CDOW, USFS, BLM and Reclamation. There are four recreation sites within the Recreation Area: Metaska, Ferris Canyon, Cabin Canyon and Bradfield Bridge (see Figure 2). The first three are administered by a concessionaire under the direction of the USFS. Bradfield Bridge Recreation Site is administered by the BLM, along with the associated rafting access point. All but Metaska feature campgrounds.

Hiking occurs on the upper reach in conjunction with fishing. The areas near the campgrounds are also used heavily by hikers. While some bicycling occurs at present, this activity may increase in the future. No special provisions, such as trails, have been made to accommodate cyclists using this section of the river. Downstream, the Snaggletooth Mountain Bike Trail spans 26 miles from the Dove Creek Pump Plant to Slick Rock, Colorado. This trail is considered one of the outstanding intermediate trails in southwest Colorado and is the focus of an annual mountain bike event.

The reach from Bradfield Bridge to about five miles downstream is becoming more heavily used by hikers and horseback riders. These activities are most often connected with fishing and increasingly are conducted by guides. These activities do not occur with frequency in the lower reach because of the difficulty of access. The lower reach is remote and vehicle access points are few. Photography is related to general enjoyment of the natural surroundings and is generally a component of most camping and float trips and the primary attraction for recreation visitors. As indicated earlier, the setting and scenery of the Dolores Canyon are aesthetically rewarding and may offer one of the most scenic floating opportunities in the nation.

## Areas of Special Designation

**Wild and Scenic River Status** - The Dolores River Wild and Scenic River Study Report recommended that 105 miles of the Dolores River from the approximate location of McPhee Dam to Bedrock be designated a component of the National System of Wild and Scenic Rivers, with the following segments proposed for classification:

1. From 1.3 miles below McPhee Dam site to Bradfield Bridge (11 miles) - Recreational
2. Bradfield Bridge to Disappointment Creek (41 miles) - Scenic
3. Disappointment Creek to Little Gypsum Valley Bridge (20 miles) - Recreational
4. Little Gypsum Valley Bridge to 1 mile upstream from Bedrock Bridge (32 miles) - Wild

These recommendations have yet to be acted upon by Congress. A withdrawal along the river corridor (Sec. 9, Wild and Scenic Rivers Act) expired in September 1981. This 105-mile reach of the river has also been designated as the Dolores River Canyon Special Recreation Management Area by BLM because of its diversity of resource dependent recreation opportunities.

**Wilderness or Wilderness Study Areas** - The 32-mile stretch of the Dolores River from Little Gypsum Creek to Bedrock Bridge is located within the Dolores River Canyon Wilderness Study Area (WSA). This 29,415-acre WSA has been recommended to Congress as suitable for wilderness designation (BLM-October, 1991).

## ENVIRONMENTAL CONSEQUENCES

### Fishing

**Proposed Action** - Implementation of the proposed action would improve the coldwater fishery downstream from McPhee Dam. The fishery would become more self-sustaining and with the continuation of catch-and-release regulations may support the sizes and numbers of trout to be designated a "Gold Medal Water" by the CDOW. An improved fishery with the opportunity to catch more and larger fish would result in increased fishing activity.

**No Action** - Implementation of the no action alternative would adversely affect the coldwater fishery and, therefore, limit the fishing opportunities in the Dolores River.

### Rafting

**Proposed Action** - Implementation of the proposed action would not significantly affect the volume of water available for release for boating flows. However, higher flows during the summer months may provide increased opportunities for small boating during high runoff years.

**No Action** - Implementation of the no action alternative would not significantly affect the volume of water available for release for boating flows.

### Other Recreational Activities

**Proposed Action** - Implementation of the proposed action would result in an increase in the use of the developed recreation areas, hiking, horseback riding, photography, and other activity related to fishing. There would be no significant effect on other activities described in this section.

**No Action** - Implementation of the no action alternative would result in a decrease in the use of the developed recreation areas, hiking, horseback riding, photography and other activities related to fishing. There would be no significant effect on other activities described in this section.

## Areas of Special Designation

The areas of special designation listed above would not be affected by either the proposed action or the no action alternative.

## J. CULTURAL RESOURCES

### AFFECTED ENVIRONMENT

There are numerous cultural resources present in the Dolores River Canyon below McPhee Dam. Evidence of Archaic, Anasazi, Ute, Navajo and historic Euro-American occupations is present.

### ENVIRONMENTAL CONSEQUENCES

**Proposed Action** Implementation of the proposed action would not directly affect the cultural resources present in the Dolores River Canyon. However, increased use of the Canyon resulting from improved fishing opportunities associated with the proposed action may increase the potential for damage to sites from vandalism or heavy use.

**No Action** - Implementation of the no action alternative would not affect the cultural resources present in the Dolores River Canyon.

## CHAPTER V CONSULTATION AND COORDINATION

### A. PUBLIC INVOLVEMENT

Reclamation prepared and mailed a Scoping Document on April 22, 1993 to interested individuals, organizations and agencies that may be interested in or affected by the proposed actions. The purpose of the Scoping Document was to: (1) notify the public that Reclamation was preparing an EA for the proposed actions; (2) solicit public comment on significant environmental issues that should be addressed in the EA; (3) identify potential alternative courses of action that the public believed Reclamation should consider. Brief summaries of the comments in response to the Scoping Document follow:

#### **Bureau of Land Management**

Reclamation's proposed action is over 19,000 acre-feet less than the BLM's identified needs for salmonid fishery downstream from Bradfield Bridge; Questions how acquisition of 7,000 acre-feet would affect white water boating; The EA needs to adequately address downstream recreation resources in addition to fish and wildlife resources.

#### **City of Cortez**

Favors exploration of alternatives for acquisition of additional water.

#### **Colorado Division of Wildlife**

Believed 36,500 acre-feet is the minimum annual reserved pool; Believes other provisions should be made such as: (1) change in water year for accounting fish and wildlife water to April 1 to March 30 (presently November 1 to October 31); (2) no charges to fish and wildlife pool during spills; (3) refill fish and wildlife pool at conclusion of spills and; (4) spill management to prolong spill; Fish and wildlife water releases should not be subjugated to operation of powerplant; Structural habitat modification are not a viable alternative to acquiring additional water.

#### **Duranglers**

Supports change to managed pool; Minimum of 36,500 acre-feet should be in pool; Fishery and business have been adversely affected since 1990; The only real habitat improvement to maintain a quality fishery is more water.

#### **Fossum, Hatter & Green**

Supports Reclamation's proposal to acquire additional water; Indian and non-Indian project water users should not solely bear the burden providing additional stream flow.

#### **Maynes, Bradford, Shipp & Sheftel**

The Interim Operating Agreement is valid only through October 1993 (subsequently extended for six months); Noted that the amount of water to satisfy downstream senior water rights is not fixed; The best mechanism for sharing shortages among all Project water users, including the downstream fishery, must be studied; An alternative should be studied that includes changes to CDOW's fish stocking activities.

#### **Montezuma Water Company**

The Company is interested if water proposed to be acquired could utilize Company water.

## **Taxpayers for the Animas River**

Comment period should be increased; An EIS should be prepared; Dam releases must be coordinated with endangered species protection; Dolores Project was poorly designed and built; more water released downstream should not be charged to the OM&R costs charged to the District; A mechanism should be found to allow downstream release of water; proposed water for release is inadequate for recreational and habitat purposes; operation of McPhee Dam should be done in conjunction with examination of re-operation of all dams in the Upper Colorado River.

## **Trout Unlimited**

Water should be managed as a pool rather than a flow; 36,500 acre-feet is the minimum pool; fish and wildlife pool should not be charged during spills; fishery releases cannot be subject to any requirement for power generation.

## **U.S. Fish and Wildlife Service**

Considers 36,500 acre-feet the minimum pool - Potential impacts to aquatic resources, especially native fishes, should be addressed; Operation of dam to avoid escapement of non-native fishes should be addressed; Supports change of water year to April 1 to March 30; Fish and wildlife pool should be credited with 36,500 after spills; Spill management should closely mimic a natural hydrograph.

## **U.S. Forest Service**

Supports the change to managed pool; 36,500 acre-feet is minimum pool; Recommended consideration of additional water beyond 36,500 acre-feet; Water year should be changed; Recommends spill management to mimic natural hydrograph; Supports CDOW's recommendation regarding powerplant operation; Structural habitat improvement may be beneficial, but is not a substitute for acquiring additional water; A quality fishery is important to USFS recreational activities and facilities; An alternative that supports a healthy aquatic ecosystem would also benefit other resources.

A public meeting was conducted at Anasazi Heritage Center on November 16, 1993. There were 24 attendees at that meeting. The Scoping Document and this draft EA were sent to the distribution list shown at the end of this chapter.

## **B. COORDINATION WITH OTHER AGENCIES**

Reclamation is the lead agency for preparation of this EA. Other key federal, state, tribal and local agencies were consulted. They provided resource expertise, technical assistance, and ongoing review and input to the environmental analysis during preparation of the EA. These agencies included:

### **Federal Agencies**

#### **Department of Agriculture**

Forest Service, Durango, Colorado; Dolores, Colorado

#### **Department of the Interior**

Bureau of Land Management, Durango, Colorado; Montrose, Colorado

Fish and Wildlife Service, Grand Junction, Colorado

### **State Agencies**

#### **Colorado State Government**

Division of Water Resources, Durango, Colorado

Division of Wildlife, Durango, Colorado; Dolores, Colorado; Fort Collins, Colorado

Reclamation consulted with the USF&WS to assure compliance with the Endangered Species Act. Reclamation requested a list of potentially affected federally-listed threatened and endangered species from the USF&WS and prepared a Biological Assessment of the proposed action. The USF&WS will render a Biological Opinion in response to the Biological Assessment. In addition, Reclamation coordinated with the USF&WS regarding general fish and wildlife resources as required by the Fish and Wildlife Coordination Act.

The Draft EA has been distributed to the following interested parties for review and comment:

**Federal Agencies:**

Bureau of Land Management, Denver, Colorado  
Bureau of Land Management, Montrose, Colorado  
Bureau of Land Management, Durango, Colorado  
Fish and Wildlife Service, Denver, Colorado  
Fish and Wildlife Service, Golden, Colorado  
Fish and Wildlife Service, Grand Junction, Colorado  
San Juan National Forest, Durango, Colorado  
San Juan National Forest, Dolores, Colorado  
Natural Resources Conservation Service, Cortez, Colorado  
Bureau of Indian Affairs, Towaoc, Colorado  
Bureau of Indian Affairs, Window Rock, Arizona  
Bureau of Indian Affairs, Albuquerque, New Mexico

**State Agencies:**

Colorado Division of Wildlife, Montrose, Colorado  
Colorado Division of Wildlife, Durango, Colorado  
Colorado Division of Wildlife, Denver, Colorado  
Division of Water Resources, Durango, Colorado  
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Colorado Water Conservation Board, Denver, Colorado

**Cities & Counties:**

Cortez, Colorado  
Dove Creek, Colorado  
Dolores Colorado  
Montezuma County  
Dolores County  
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**Newspapers:**

Cortez Newspapers, Inc., Cortez, Colorado  
Durango Herald, Durango, Colorado  
Grand Junction Sentinel, Grand Junction, Colorado  
The Times Independent, Moab, Utah  
Dolores Star, Dolores, Colorado  
Dove Creek Press, Dove Creek, Colorado  
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Telluride Times Journal, Telluride, Colorado  
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**Water Districts & Companies:**

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**Indian Tribes:**

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The Navajo Nation, Window Rock, Colorado

**Organizations:**

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Colorado River Outfitters Association, Buena Vista, Colorado  
Sierra Club Legal Defense Fund, Denver, Colorado  
Taxpayers for the Animas River, Durango, Colorado  
The Nature Conservancy, Boulder, Colorado  
Trout Unlimited, Five Rivers Chapter, Durango, Colorado  
Wilderness Aware, Buena Vista, Colorado  
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**Private Entities**

Duranglers, Durango, Colorado  
Gunnison River Expeditions, Montrose, Colorado  
Outfitter Sporting Goods, Dolores, Colorado  
Over the Hill Outfitters, Durango, Colorado  
Rafting Expeditions, Nathrop, Colorado  
San Juan River Outfitters, Durango, Colorado  
Telluride Outside, Telluride, Colorado  
Telluride Whitewater, Telluride, Colorado  
Telluride Fly Fishers, Telluride, Colorado  
The Outfitter,  
Timberwolf Whitewater Expeditions  
Peregrine River Outfitters, Durango, Colorado  
Roaring Fork River Company, Frisco, Colorado  
Rocky Mountain Adventures, Inc., Fort Collins, Colorado  
Rocky Mountain Outdoor Center, Howard, Colorado  
Rocky Mountain River Expeditions  
San Juan Troutfitters, Farming, New Mexico  
Sheri Griffith Expeditions, Moab, Utah  
Slickrock Kayak Adventures, Moab, Utah  
Snowmass White Water, Snowmass Village, Colorado  
Independent Whitewater, Garfield, Colorado  
McPhee Marina, Cortez, Colorado  
Mountain Waters Rafting, Inc., Durango, Colorado  
NOLS, Vernal, Utah/Lander, Wyoming  
Noah's Ark Whitewater Rafting Co., Buena Vista, Colorado  
O.A.R.S., Angles Camp, California  
Outdoor Leadership Training Seminars, Denver, Colorado

Outfitter Sporting Goods, Dolores, Colorado  
 Colorado Whitewater Expeditions, Poncha Springs, Colorado  
 Country Campground and Store, Dove Creek, Colorado  
 Durango River Trippers, Durango, Colorado  
 Far-Flung Adventures, Terlingua, Texas  
 Flexible Flyers, Durango, Colorado  
 Four Corners Expeditions, Buena Vista, Colorado  
 Four Corners Marine, Durango, Colorado  
 Four Corners River Sports, Durango, Colorado  
 Wanderlust Adventures, Fort Collins, Colorado  
 Westfork Outfitters, Dolores, Colorado  
 Whitewater Odyssey, Evergreen, Colorado  
 Wilderness Aware, Buena Vista, Colorado  
 Wildwater Discovery, Inc., Fort Collins, Colorado  
 Worldwide Exploration, Inc., Flagstaff, Arizona  
 Adrift Adventures, Fort Collins, Colorado  
 Dovorak's Kayak & Rafting Expeditions, Nathrop, Colorado  
 Artemis Wilderness Tours, El Prado, New Mexico  
 Bighorn Expeditions, Junction, Texas  
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 Durango River Trippers, Durango, Colorado  
 Far-Peak Adventures, Turkey, Texas  
 Flexible Flyers, Durango, Colorado  
 Four Corners Expeditions, Buena Vista, Colorado  
 Four Corners Marine, Durango, Colorado  
 Four Corners River Sports, Durango, Colorado  
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 Westlock Outfitters, Dolores, Colorado  
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Warren Hurley	Archaeologist		Reclamation Cultural resources
Kirk Lashmett	Environmental Protection Specialist		Reclamation Aquatic resources; fishery and threatened and endangered species
Jan McKee	Wetlands Biologist		Contractor Wetland and riparian vegetation
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Stan Powers	Planning Team Leader		Reclamation Project operation-EA review
Leann Towne	Civil Engineer		Reclamation Project operation-EA review
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# United States Department of the Interior

FISH AND WILDLIFE SERVICE  
Ecological Services  
Western Colorado Office  
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Grand Junction, Colorado 81506-3946

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IN REPLY REFER TO:

ES/CO:BR-Dolores Project  
MS 65412 GJ

June 5, 1996

## Memorandum

To: Southern Division Manager, Bureau of Reclamation, Upper Colorado Region, Durango, Colorado

From: Assistant Field Supervisor, Fish and Wildlife Service, Ecological Services, Grand Junction, Colorado

Subject: Biological Assessment for Modification of Operation and Acquisition of Water for Downstream Release for the Dolores Project

The Fish and Wildlife Service appreciated receiving an updated biological assessment for the subject project. The Service concurs with your "no effect" determination for the bald eagle (*Haliaeetus leucocephalus*), peregrine falcon (*Falco peregrinus*), Mexican spotted owl (*Strix occidentalis lucida*), and southwestern willow flycatcher (*Empidonax traillii extimus*). The Service believes that for the Upper Colorado River Basin there should be a "may affect, not likely to adversely affect" determination for the Colorado squawfish (*Ptychocheilus lucius*), humpback chub (*Gila cypha*), bonytail (*Gila elegans*), and razorback sucker (*Xyrauchen texanus*) provided that the proposed alternative is implemented. This determination can be made because of increased flows in the Dolores River and management flexibility which allows higher spring flows may be beneficial to the endangered fishes.

Less water may be returned to the San Juan River because of increased releases to the Dolores River; however, there will still be additional water released to the San Juan River from the Dolores Project which would otherwise not be added to the San Juan River. Consequently, the Service concurs with your "no effect" determination for the Colorado squawfish and razorback sucker in the San Juan River. No further consultation is required for this portion of the Dolores Project as long as the proposed alternative is implemented.

If the Service can be of further assistance, please contact Terry Ireland at the letterhead address or (970) 243-2778.

pc: FWS/ES, Golden  
CDOW, Durango (Attn: Mike Japhet)  
Tireland:DoloBA.mem:060596



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**BIOLOGICAL ASSESSMENT**

**MODIFY OPERATION OF MCPHEE RESERVOIR**

**AND**

**ACQUIRE ADDITIONAL WATER**

**FOR FISH AND WILDLIFE PURPOSES**

May, 1996

Department of the Interior  
Bureau of Reclamation  
Upper Colorado Region  
Western Colorado Area Office, Southern Division

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AND

ACQUIRE ADDITIONAL WATER

FOR FISH AND WILDLIFE PURPOSES

May, 1992

Western Colorado Area Office, Southern Division  
Upper Colorado Region  
Bureau of Reclamation  
Department of the Interior

## A. INTRODUCTION

The Dolores Project (Project) was constructed by the Bureau of Reclamation primarily to store flows of the Dolores River for irrigation and municipal and industrial use. The Project also provides hydroelectric power generation, salinity control, recreation opportunities, fish and wildlife enhancement and mitigation measures, area economic development, and cultural resources mitigation. Construction of the Project began in 1977 and all project facilities are essentially complete.

## B. PURPOSE AND NEED FOR ACTION

The purpose of the proposed action is to increase the benefits from the Dolores Project. The downstream release portion of the reservoir operating criteria specified in the Definite Plan Report (DPR) and Final Environmental Statement (FES) has proven to be unsatisfactory for managing the water reserved for fish and wildlife resources in the Dolores River downstream from McPhee Reservoir.

## C. BACKGROUND

Reclamation operated McPhee Reservoir according to the filling criteria from its closure in 1984 until it filled in 1987. The reservoir was operated according to the criteria in the DPR and FES and consistent with the repayment contract between the United States and Dolores Water Conservancy District (DWCD) from 1987 to June, 1990. The operating criteria in the DPR and FES specified year-round minimum releases to the Dolores River of 20 cubic feet per second (cfs) during dry years, 50 cfs during normal years, and 78 cfs during wet years. Dry, normal, and wet years were defined in the DPR and FES based on reservoir content and runoff predictions at specified dates. The primary purpose of the releases was to establish and maintain a trout fishery in the Dolores River from McPhee Dam to Bradfield Bridge (approximately 12 miles).

Minimum downstream releases were set at 78 cfs from 1984 through 1989, the flow associated with a wet year in the DPR and FES operating criteria. This was partially a result of the hydrology of the Dolores River Basin during this period and partially a result of the project's limited development. During this period, a good trout fishery was established in the river from McPhee Dam to Bradfield Bridge. Precipitation in water year 1989 was very low and the dry trend continued in early 1990. In March 1990 a dry year determination was made in accordance with the operating criteria and the downstream release was set at 20 cfs for the first time in the Project's operating history.

After several meetings and negotiations between Reclamation, Project water users, Trout Unlimited (TU), and Colorado Division Of Wildlife (CDOW), a short-term solution to the low flows was achieved. An agreement between Reclamation and DWCD was reached for the release of an additional 6,000 acre-feet (AF) of Project water downstream through October 1990. Releases were increased to 35 cfs on June 15, 1990, and

to 50 cfs by June 20, 1990, to minimize adverse effects on the trout fishery. On September 4, 1990, releases were reduced to 31 cfs until October 31, 1990.

An interim operation agreement for operation of McPhee Dam from November 1, 1990 through October 31, 1993 (subsequently extended through the present) was executed between Reclamation and the DWCD. The interim agreement provided for alternative dam operation until a long-term solution to the water release and trout fishery issue could be developed and implemented. From November 1, 1990, to the present, McPhee Reservoir has been operated according to the Interim McPhee Dam and Reservoir Operations Agreement (IOA), as amended. Key elements of the current IOA related to water releases for fish and wildlife purposes to the Dolores River are:

- An interim pool of up to 29,300 AF available for release each water year (November 1 to October 31). The 29,300 AF volume is comprised of: (1) 25,400 AF reserved for fish and wildlife purposes; (2) up to 3,900 AF of senior downstream water rights. (As of October 31, 1993, 800 AF of water reserved for Totten Reservoir and included in previous versions of the IOA is not available for downstream release.)
- Water releases will be made by the DWCD under direction from Reclamation and in coordination with other federal and state agencies and local interests for fish and wildlife purposes downstream of McPhee Dam.
- No deduction would occur from the interim pool at any time Reclamation directs a spill release from McPhee Reservoir.
- The interim managed pool would not share shortages occurring to Project irrigation water users.

Operation under the IOA has allowed releases to the Dolores River to be maintained in the 60 to 70 cfs range or greater during the critical summer months, and at 30 cfs or higher during the winter.

Since late 1990, Reclamation has coordinated with Project water users, TU, CDOW, the U.S. Fish and Wildlife Service (USF&WS), the Bureau of Land Management (BLM), the U.S. Forest Service (USFS) and other interested individuals and groups to identify a long-term solution. A Biology Committee comprised of representatives from Reclamation, CDOW, USF&WS, USFS, BLM and (TU) was established to administer the pool of water reserved for downstream use and to recommend biological studies to determine the flow requirements for a coldwater fishery. Reclamation, CDOW, and the USFS conducted the studies. Reclamation also reviewed the Project hydrology and the 1977 Project operation study used to evaluate the Project water supply and to allocate Project water. This review revealed a discrepancy in the volume of Project water reserved by the United States for downstream fish and wildlife purposes and the actual volume of Project water that would be required to meet the downstream DPR/FES release criteria.

The 1977 Project operation study simulates Project operation on a monthly basis for the period 1928 through 1973. During the study period, the minimum release from McPhee Dam was 78 cfs in 13 years (28%), 50 cfs in 23 years (50%), and 20 cfs in 10 years (22%). These releases were made up of spills (water excess to the Project), water released to satisfy senior downstream water rights, and Project water released from storage. The study indicated that the average annual amount of Project water required to be released from storage to make these flows was 25,400 AF. Because the operation study is a monthly model, it is not possible to simulate managed releases in place of spills. The model allows the reservoir to fill and spill in an uncontrolled manner. This results in much shorter spill periods with higher flows than would occur in actual operation. To compensate, the model did not simulate releases of 78 cfs during wet years but released 50 cfs during both normal and wet years and assumed the extra water needed for the higher flows would be offset by the longer periods of managed releases in place of spills (longer periods when no Project water was required to be released from storage). However, this assumption is probably not valid. When minimum releases downstream were increased from 50 cfs to 78 cfs during wet years, the average annual volume of Project water required to meet the downstream criteria was increased to 29,300 AF. This results in a discrepancy of 3,900 AF between the volume of Project water reserved by the United States for downstream purposes and the volume of Project water required to meet the DPR/FES downstream release criteria.

#### D. SCOPE

The scope of this Biological Assessment is limited to evaluating the effects of the proposed action described below and in the January 1996 Draft Environmental Assessment entitled "Proposal to Modify Operation of McPhee Reservoir and Acquire Additional Water for Fish and Wildlife Purposes".

#### E. ALTERNATIVES

Reclamation developed and evaluated a range of alternatives to the proposed action. Only the proposed action and the no action alternative are feasible for implementation.

##### 1. PROPOSED ACTION

**Modify the operation of McPhee Reservoir** - Reclamation proposes to modify the operation of McPhee Reservoir by changing from the 1977 DPR/FES downstream release criteria of 78, 50, or 20 cfs to a managed pool of water available from storage for downstream release for fish and wildlife purposes. An interagency team would manage releases from the pool to provide seasonally fluctuating downstream flows for the benefit of downstream fish and wildlife resources. Releases would be made by DWCD under direction by Reclamation. For water accounting purposes, releases will be measured at the parshall flume installed in the Dolores River below McPhee Dam. This modification would require a separate

operating agreement between Reclamation and DWCD pursuant to Article 9 of DWCD's repayment contract. This modification in operation would not occur until an initial 3,900 AF of additional water is acquired.

**Acquire at least 7,200 AF of additional water for fish and wildlife purposes** - Reclamation proposes to acquire 7,200 AF of water to establish a pool of storage in McPhee Reservoir with a total annual volume of up to 36,500 AF for downstream release from McPhee Reservoir to the Dolores River. This volume has been recommended as a suitable goal by several resource management agencies and TU. The 7,200 AF would be added to the 25,400 AF of Project water reserved by the United States for fish and wildlife purposes and the up to 3,900 AF of water required to satisfy senior downstream water rights.

Additional water for the managed pool will be acquired in three increments:

**Increment I (3,900 AF)** - The DWCD has agreed to provide 3,900 AF of water annually, subject to payment by Reclamation, to increase the pool of water reserved by the United States for fish and wildlife purposes to 29,300 AF. This water would be added to the up to 3,900 AF of water for senior downstream water rights for a total managed pool of up to 33,200 AF. The acquisition of this 3,900 AF of additional water would resolve the discrepancy in the original project operation study regarding the average annual volume of Project water required from storage to fulfill the 1977 DPR/FES downstream water release criteria. Reclamation will solely fund the acquisition of this increment of water.

**Increment II (3,300 AF)** - The Ute Mountain Ute Tribe has agreed to provide 3,300 AF of water, on a lease basis for up to 5 years, to increase the pool of water reserved by the United States for fish and wildlife purposes from 29,300 AF to 32,600 AF. Reclamation would fund the lease arrangement. This water would be added to the water for senior downstream water rights (up to 3,900 AF) for a total managed pool of 36,500 AF.

Permanent acquisition of this increment of water will require cost sharing participation by others. Reclamation will appropriate \$371,000 to establish an account for the acquisition of water. Entities wishing to participate in water acquisition would make deposits to this account. A coalition of entities and individuals would be established to administer the account and acquire water as opportunities arise.

**Increment III (Water in excess of 7,200 AF)** - The trust account described above would remain open and the acquisition process would continue. This increment may include acquisition of water which could be managed for purposes other than fish and wildlife.

**Fish and Wildlife managed pool water year changed** - The water year for the managed pool would be established as April 1-March 31. This is different from the water year of other Project water users which begins on November 1. The District would implement an accounting system for the fish and wildlife pool similar to the accounting system for other Project water users. The benefit of changing the water year for the

fish and wildlife managed pool would be that planning for the quantities and duration of releases would occur when the best information concerning the extent of the spring runoff is available.

**Managed pool not counted against during spills** - The fish and wildlife pool would not be charged depletions during periods of release from McPhee Dam in anticipation of a spill (controlled release of water which would be excess to available storage space in the reservoir) or during an actual spill.

**Major portion of managed pool would share shortages during dry years** - Portions of the managed pool would share water shortages with other Project water users during dry years. The 25,400 AF of Project water currently reserved by the United States for downstream fish and wildlife purposes would share shortages equally with Project irrigation water. The 3,900 AF of water to be acquired from DWCD would share shortages. The water required to satisfy senior downstream water rights (up to 3,900 AF) would be regulated by the State priority system. Whether additional acquired water would share in shortages would depend on its origin. For example, acquired Project irrigation water would share in shortages, while acquired Project municipal and industrial water would not be subject to shortages. Acquired non-Project water would be regulated by the State priority system.

## 2. NO ACTION

Reclamation would operate McPhee Reservoir according to the 1977 DPR/FES release criteria of 78, 50, or 20 cfs after expiration of the Interim Operations Agreement (or any extensions). Flows in the Dolores River would be maintained at 78 cfs during wet years, 50 cfs during normal years, and 20 cfs during dry years (DPR pg.68-69). A wet year is considered to begin on May 1 and extend for one year if the end-of-April content of McPhee Reservoir exceeds 82% of the active capacity. A normal year occurs when the end-of-April content is less than 82% of the active capacity and the March 1 prediction of the end-of-June content was greater than 45% of the active capacity. A dry year would begin on March 1 and extend for one year if the March 1 prediction of the content of McPhee Reservoir at the end of June is less than, or equal to, 45% of the active capacity.

G. THREATENED AND ENDANGERED SPECIES

Under requirements of Section 7 of the Endangered Species Act (Act), Reclamation requested from the U.S. Fish and Wildlife Service (Service) a list of threatened and endangered species that may be present in areas affected by the proposed action. The Service identified the federally-listed threatened or endangered species that may occur in the area affected by the proposed action on April 5, 1993. The service updated the list in December 1993 and again verbally in February 1996.

Species	Status
Bald eagle ( <u>Haliaeetus leucocephalus</u> )	Threatened
Peregrine falcon ( <u>Falco peregrinus</u> )	Endangered
Mexican spotted owl ( <u>Strix occidentalis lucida</u> )	Threatened
Colorado squawfish ( <u>Ptychocheilus lucius</u> )	Endangered
Razorback sucker ( <u>Xyrauchen texanus</u> )	Endangered
Humpback chub ( <u>Gila cypha</u> )	Endangered
Bonytail chub ( <u>Gila elegans</u> )	Endangered
Southwestern willow flycatcher ( <u>Epidomax trailii extimus</u> )	Endangered
Black-footed ferret ( <u>Mustela nigripes</u> )	Endangered
Mesa Verde cactus ( <u>Sclerocactus mesae-verdae</u> )	Endangered
Spotted bat ( <u>Euderma maculatum</u> )	Candidate
Black tern ( <u>Chilodrias niger</u> )	Candidate
Loggerhead shrike ( <u>Lanius ludovicianus</u> )	Candidate
White-faced ibis ( <u>Plegadis chici</u> )	Candidate
Ferruginous hawk ( <u>Buteo regalis</u> )	Candidate
Cronquist milkvetch ( <u>Astragalus croquistii</u> )	Candidate
Schmoll milkvetch ( <u>Astragalus schmollae</u> )	Candidate
Mesa Verde stickseed ( <u>Hackelia gracilentia</u> )	Candidate

While the Act does not require federal agencies to address candidate species in a biological assessment, Reclamation recognizes the importance of addressing potentially threatened species to assist in preventing further decline of the species ultimately requiring formal protection under the Act. The candidate species are not addressed since they are neither known to occur within any habitat potentially affected by the proposed action or they are not known to occur in either the Dolores or San Juan river floodplains. Since the proposed action would affect federally protected species in both the Dolores River and San Juan River basins, assessed impacts to species occurring in each basin are described separately.

The federally endangered black-footed ferret and the threatened Mesa Verde cactus are not addressed in this assessment since they occur strictly in upland habitats and are not known to occur in any of the sections of the Dolores or San Juan basins that would be affected by the alternatives. Similarly, the spotted bat, black tern, loggerhead shrike, white faced ibis, ferruginous hawk, cronquist milkvetch, schmoll milkvetch or Mesa Verde cactus, all Candidate species, are also not addressed as they are either strictly associated with upland habitats or are otherwise not known to occur in association with the affected area.

## H. DOLORES RIVER BASIN

### BALD EAGLE

Bald eagles overwinter in the area and regularly use that reach of the Dolores River just downstream from the dam. Since the closure of the dam, as many as thirty of these federally-protected raptors have been reported from this portion of the Dolores River during the winter (pers. comm. Mike Zgainer, CDOW, 1993). Strongly associated with riparian areas and open water, bald eagles are attracted by an accessible food source, consisting primarily of waterfowl and fish. Over the last three years, the availability of open water associated with a 30 cfs winter time flow is restricted to the first 1-2 miles downstream of the dam. Water released during the winter has been averaging near 38° F. From 1984 through 1989, wintertime flows through the dam were never reduced below 78 cfs, as prescribed under McPhee Dam's original operating criteria. It is expected higher winter releases would result in more of the river remaining ice free; however, flows other than 30 cfs have not been monitored. Further downstream, the river more frequently ices over, as does much of McPhee Reservoir. Because of limited open water in recent years, waterfowl tend to concentrate in the tailwater area below the dam. These waterfowl may well constitute the primary food source of bald eagles wintering along this reach of the Dolores. Also, as has been documented in numerous other reports, Reclamation assumes carrion, primarily elk and deer, also are part of the bald eagles winter diet. The availability of a concentrated and reliable food source, along with closure to public access of the road paralleling the first 4 miles of the river below the dam, combine to provide an attractive wintering site for bald eagles.

The nearest known nesting pairs of bald eagles have been reported in the Lost Canyon area (10-20 miles from the dam) and west of Cortez (pers. comm. Jerry Craig, CDOW, 1993). Neither of these two nesting pairs are dependent on the Dolores River downstream from McPhee Dam, although the availability of suitable nesting habitat in the drainage could result in summer use of this portion of the Dolores at some time in the future (pers. comm. Jerry Craig, CDOW, 1993).

Over the long term, implementation of the proposed action would likely benefit wintering bald eagles. The proposed action would avoid returning to the extreme, chronic low flow (20 cfs) years (no action alternative), which would reduce the extent of open water downstream of McPhee Dam during the winter. Since downstream fish communities would benefit from pool management, a valuable eagle prey base would remain available. The proposed action may increase the potential incidence and extent of river icing during the winter due to maintenance of lower base flows during "normal" (50 cfs) and "wet" (78 cfs) years than would occur under the no action alternative.

Reclamation has no data relating the winter time use of the Dolores River by bald eagles at flow higher than 30 cfs. While more of the river may be open at higher flow, Reclamation cannot project how many more bald eagles, if any, the river might support under these conditions. In the absence of data to the contrary Reclamation; therefore, believes the proposed action would not adversely affect wintering bald eagles downstream of McPhee Dam.

## **PEREGRINE FALCON**

Another federally protected raptor, the peregrine falcon, also occurs in the Dolores Canyon. An aerie is located approximately ten miles downstream from the Dove Creek pump plant, approximately 44 miles downstream from McPhee Dam (pers. comm. Jerry Craig, CDOW, 1993). Further downstream, two other nesting pairs are located in a stretch of river between Slick Rock and Bedrock, Colorado. The canyon environment of the Dolores River drainage from the dam to Bradfield Bridge provides suitable nesting habitat, but no active nests are known to occur within this reach (pers. comm. Jerry Craig, CDOW, 1993).

Peregrine falcons are unlikely to be affected by the proposed action because these falcons are not directly dependent on the riparian system. Their primary prey are relatively small birds, some of which are likely to be found along the river corridor. However, the proposed action is not expected to alter the vegetation communities of the Dolores River floodplain and; therefore, should not have any effect on the bird communities inhabiting them. Reclamation concludes that implementation of the proposed action would not affect the peregrine falcon.

## **MEXICAN SPOTTED OWL**

Two stretches of the Dolores River have been surveyed for the Mexican spotted owl (Boyle and Franklin, 1993), federally listed as a threatened species. The first stretch extends from Salter Canyon, six miles downstream of the dam) to Bradfield Bridge (a distance of about six miles); the second from the Dove Creek pump plant (thirty-three miles downstream of the dam) to Joe Davis Hill (a distance of about ten miles). No spotted owls were discovered within the river corridor. The closest nesting pair known in the general area is within Mesa Verde National Park, approximately 40 miles south of McPhee Reservoir. The closest suspected individual identified was in the Beaver Creek drainage near McPhee Reservoir (pers. comm. Dave Cook, USFS, 1993).

This subspecies feeds, nests and roosts in multi-layered, old-growth coniferous forest within deep, rocky canyons. It's primary food source is small mammals, such as woodrats, typical of that habitat type. The Mexican spotted owl is not believed to be dependent on the riparian corridor (pers. comm. Dave Cook, USFS, 1993) and, if present, would not be affected by implementation of the proposed action.

## **SOUTHWESTERN WILLOW FLYCATCHER**

The southwestern willow flycatcher is one of five currently recognized subspecies of willow flycatchers in North America. The southwestern willow flycatcher's historic and current breeding range includes southern California, southern Nevada, southern Utah, Arizona, New Mexico, western Texas, and southwestern Colorado. Southwestern Colorado (and the southern portions of Utah and Nevada) are believed to be the northernmost extent of its breeding range. (Federal Register, 1995a; Tibbitts et al., 1994)

The Bureau of Land Management and the Fish and Wildlife Service have conducted surveys for willow flycatchers along the Dolores River from Bradfield Bridge to Slickrock, and from just upstream of Paradox Valley to the confluence with

the Colorado River. An unconfirmed sighting at the mouth of La Sal Creek was reported during 1994 season but no birds were found along the surveyed reaches of river. However, southwest willow flycatchers were located on the tributaries of Roc Creek and West Creek which enter the Dolores River below the confluence with the San Miguel River.

The southwestern willow flycatcher is most frequently associated with riparian habitats along rivers, streams, or other wetlands, where dense growths of willows, seepwillow, arrowweed, buttonbush, or other native shrubs and medium-sized trees dominate—often with a scattered overstory of larger, mature cottonwoods (Federal Register, 1995a; Tibbitts et al., 1994). Suitable habitat is limited in the surveyed sections of river. Willow communities are present throughout the Dolores drainage, but the communities are limited in area and the species which occurs is small in size. Implementation of the proposed action would not affect the existing riparian zone, and would therefore not affect this subspecies.

#### **COLORADO SQUAWFISH**

Of the four federally protected fish species addressed in this assessment, only the Colorado squawfish has been historically reported from the Dolores River (Valdez, et al., 1992). Historically, Colorado squawfish have been reported as far upstream as Paradox Valley as recently as 1962. Several other collections of squawfish have been reported from the Dolores River in the 1950's and 1960's. However, two surveys conducted in the 1970's and early 1980's of the Dolores River did not encounter this species (Valdez, et al., 1992). Prior to the construction of McPhee Dam, extreme seasonal dewatering due to irrigation diversions (primarily the Montezuma Valley Irrigation Company Diversion near Dolores, Colorado) coupled with poor water quality conditions could have restricted the use of the Dolores River by Colorado squawfish. Operation of a uranium mill processing plant near the San Miguel River at Uravan, Colorado from the mid 1940's through the early 1970's is known to have resulted in several toxic spills into the river. Valdez, et al., 1992 also report a uranium concentrating plant was operational near Slickrock, Colorado over generally the same time frame. Perhaps the most adverse limitation to aquatic life in the Dolores River may occur through Paradox Valley, Colorado, where water quality is severely degraded by the natural inflow of brine ground water. During low flow conditions, the concentration of salt in the river can exceed three times the concentration of sea water virtually eliminating all aquatic life downstream to the confluence of the San Miguel River. A fishery study conducted by BIO/WEST Inc. in 1991-92, encompassed the section of the Dolores River from Bradfield Bridge (about twelve miles downstream of McPhee Dam) to the confluence of the Colorado River (Valdez, et al., 1992). During the course of this study, four Colorado squawfish were captured from the Dolores River, all within 2 kilometers of the Colorado River. It is not known if these fish were temporarily using the Dolores River or were permanent residents; however, since all of the squawfish collected were in such close proximity to the Colorado River, it is probable they were only temporarily inhabiting the Dolores River.

Colorado squawfish are known to occur in the Colorado River downstream of its confluence with the Dolores River; however, the small magnitude in flow change

in the Colorado River associated with any of the alternatives would not adversely impact this species. The proposed action would be beneficial compared to the no action alternative since the chronic 20 cfs flow during dry years would be avoided. Lower flows associated with the proposed action would occur during the winter, but based on studies conducted over the last three years, flow is not expected to be dropped below 30 cfs during this period. The highest flow would be provided downstream of the dam during summer months. If a sufficient volume of water was available, flow no less than 70 cfs would be provided during the hottest summer periods. A 20 cfs flow was considered by Valdez, et al., (1992) as being extremely detrimental to aquatic life. They concluded, however, if sufficient flows were present, the Dolores River would have suitable habitat for reintroduction of experimental populations of Colorado squawfish. It is not known what magnitude of flow would be needed at this time. The Service has no immediate plans for reintroducing an experimental population of Colorado squawfish in to the Dolores River in the near future (pers. comm. John Hamil, USFWS, 1994). Reclamation does not believe that implementation of the proposed action would affect either the Colorado squawfish or its' critical habitat in the Colorado River.

**RAZORBACK SUCKER, BONYTAIL CHUB, HUMPBACK CHUB**

The razorback sucker, bonytail chub and the humpback chub have all been reported from the Colorado River downstream of its' confluence with the Dolores River. None of these species have ever been reported from the Dolores River. As concluded above for the Colorado squawfish, Reclamation does not believe implementation of the proposed action would directly affect either the species or their proposed critical habitat in the Colorado River.

**I. SAN JUAN RIVER BASIN**

**DOLORES PROJECT RETURN FLOWS**

The Dolores Project diverts water from the Dolores River basin for irrigation, municipal and industrial (M&I) use in the San Juan River basin. Project water return flows enter the San Juan River via the Mancos River, Cowboy Wash, Marble Wash, McElmo Creek, and Montezuma Creek. Average annual Project return flows were estimated as 50% return from the municipal and industrial water diverted, 18% of the full service irrigation water delivered on farm, and 35% of the supplemental irrigation water delivered on farm. Following is the estimated average annual return flows associated with each use under full Project development.

<u>Use</u>	<u>Acre-Feet</u>
Municipal & Industrial	4,350
Irrigation	
Full Service	15,850
Supplemental Service	<u>4,800</u>
Total	25,000

Water use from the Dolores Project is not yet fully developed and the total estimated average annual return flows have not been realized in the San Juan River. For example, the City of Cortez and the Town of Dove Creek have returned approximately 4,200 acre-feet (AF) of their Project M&I water allocation to the Dolores Water Conservancy District (DWCD), indicating they did not have a current use for the water and would not have a use in the future. The Ute Mountain Ute Tribe currently irrigates only about 4000 acres of their total 7,500 acres of Dolores Project lands. Also, the average annual demand for project supplemental water may be less than anticipated due to improvements made to the delivery systems and the change from flood to sprinkler irrigation.

The proposed action includes the acquisition of at least 7,200 AF of water for release downstream to the Dolores River. The water would be acquired in two increments. The first increment of 3,900 AF would be provided permanently by the DWCD as an additional project water use, thus not limiting full development of the Project as planned. This action would slightly decrease the return flows to the San Juan River by slightly increasing the frequency and severity of Project irrigation water shortages. The average annual supply of Project irrigation water would be reduced by approximately 1%, reducing the estimated average annual return flows by approximately 1% or 200 AF. The second increment of 3,300 AF would be provided temporarily (up to 5 years) by the Ute Mountain Ute Tribe from a portion of their currently unused Project irrigation allocation. A permanent source for this water has not yet been identified. The worst case scenario for acquisition of this increment of water, as it pertains to potential return flows to the San Juan River, would be to acquire 3,300 AF of currently unused Project M&I water. This action would reduce the estimated potential average annual return flows to the San Juan River by 1,650 AF. Therefore the maximum reduction of estimated average annual potential return flows to the San Juan River resulting from implementation of the proposed action would be 1,850 AF. It is important to note that this is a reduction of potential flows, not actual flows, as the water that would be acquired has never been diverted for use in the San Juan basin.

The estimated average annual Project return flows of 25,000 AF, based on full Project development, were included in the San Juan River baseline in the 1991 Final Biological Opinion for the Animas-La Plata Project. Estimated average annual Project return flows were reduced to 22,000 AF in the San Juan River baseline used in the 1996 Draft Biological Opinion for the Animas-La Plata Project, based on implementation of the proposed action described in the February 1995 Draft Environmental Assessment of the Proposal to Modify Operation of McPhee Reservoir and Acquire Additional Water for Fish and Wildlife Purposes.

#### **SPECIES ASSESSMENT**

The Colorado squawfish and the razorback sucker are known to exist in portions of the San Juan River downstream of where Dolores Project irrigation return flows enter the river (Platania, 1990). The majority of these return flows enter the San Juan River at the McElmo Creek confluence (RM 100).

Ryden and Pfeifer (1995) showed that Colorado squawfish adults used a small

area between Bluff, Utah and Mexican Hat around RM 75. One squawfish captured at RM 74.8 made a 50-60 mile migration to the "Mixer" area (RM 133.4 to RM 129.8) during the suspected spawning season in 1994. The fish then returned to within 0.4 river miles of its original capture location. Young-of-the-Year squawfish have primarily been found in the lower 4 miles of the San Juan River and the Lake Powell inflow area as far as 6.3 miles below Piute Farms. Lashmett (1993, 1994) collected a total of 12 Colorado squawfish in this area. Archer et al. (1995) captured 7 YOY Colorado squawfish in 1994, including 6 between RM 8.0 and 25.2 and one at RM 122.6, during nursery habitat studies.

Only one razorback sucker has been collected since 1987 in the San Juan River (BioWest 1995). This adult was collected from a main channel run near Bluff (RM 80) in April, 1988 (Platania 1990). Additional adult razorbacks have been collected from shoreline habitats in the San Juan Arm of Lake Powell. Studies of stocked razorbacks in 1995 and future years may provide information on important subreaches for this species. While sexually ripe razorback suckers have been collected from the San Juan River and the San Juan arm of Lake Powell in recent years, no young-of-the-year or juvenile razorbacks have been sampled from the system; therefore, recruitment by this species may not be occurring (Platania, 1990).

In addition to federally listed species, a relatively large population of native flannelmouth suckers (Platania, 1990; BioWest, 1995) and possibly a small population of roundtail chubs also exist in the San Juan River downstream of McElmo Creek (pers. comm. Tom Beck, CDOW, 1988). It is possible that these species may attempt spawning in this section of the San Juan River. Buntjer et al. (1994) collected young roundtail chubs in backwaters below RM 100 in the San Juan River in 1993. Gido and Propst (1995) captured 8 roundtail chub in 1993 and 4 in 1994 in secondary channels between RM 87.4 and 134.9. It is possible that most of the roundtail chub in the main San Juan River come from the Mancos River or other tributaries that harbor healthy populations (Buntjer et al. 1994).

Implementation of the proposed action would not result in an actual depletion from the San Juan River, only a reduction in the estimated volume of potential return flows. Therefore, implementation of the proposed action would not directly impact endangered or candidate fish populations existing in the San Juan River. In summary, Reclamation concludes this action would not effect either the protected Colorado squawfish and razorback sucker or their critical habitat, or the candidate species; the flannelmouth sucker and roundtail chub.

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