FINAL ENVIRONMENTAL ASSESSMENT

Morrow Point
Cimarron Dredging
Project

Prepared by
Bureau of Reclamation
Western Colorado Area Office
Grand Junction, Colorado

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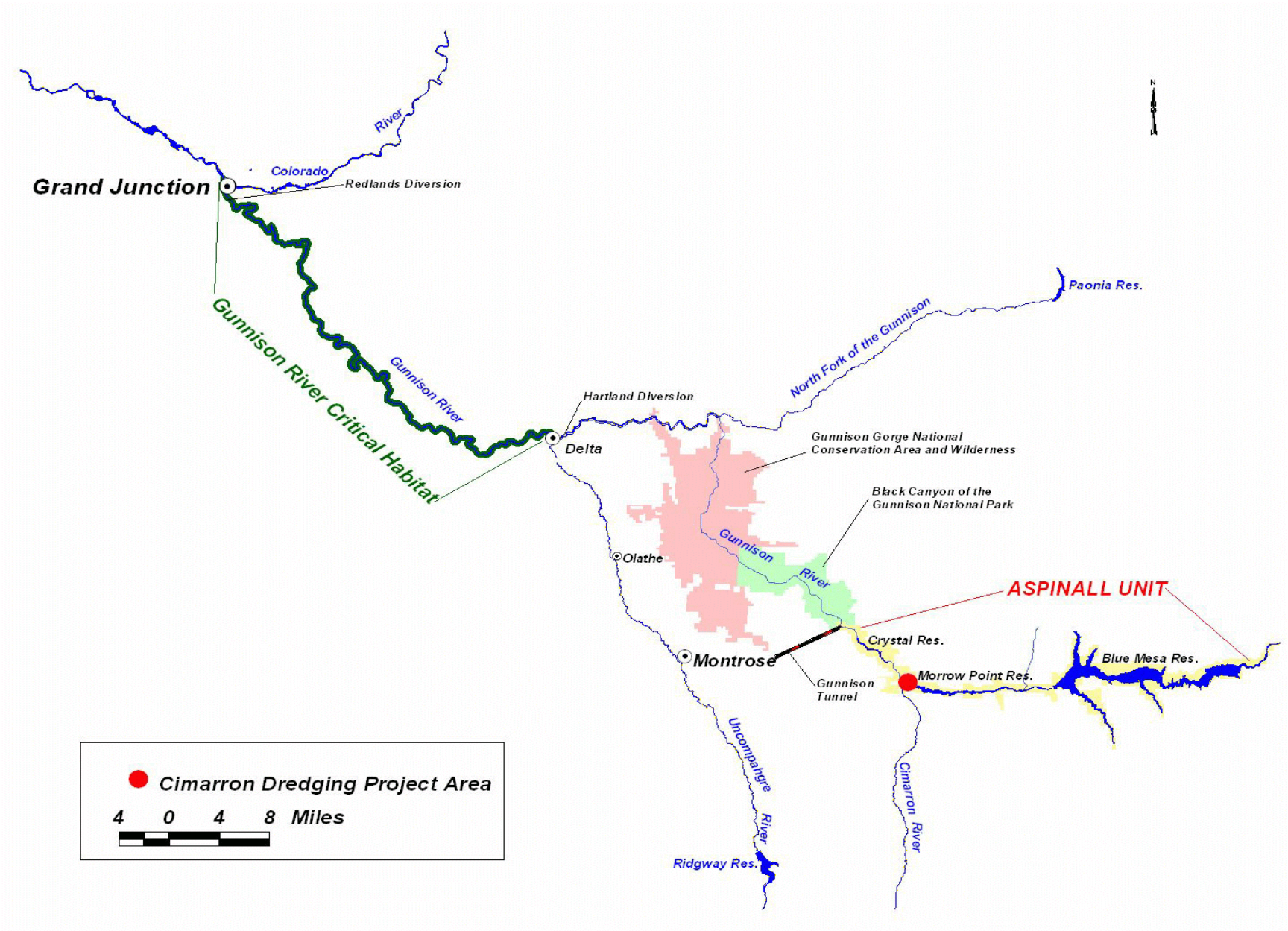
Grand Junction
Colorado River
Redlands Diversion
Gunnison River Critical Habitat
Gunnison River
Paonia Res.
North Fork of the Gunnison
Hartland Diversion
Delta
Gunnison Gorge National Conservation Area and Wilderness
Black Canyon of the Gunnison National Park
Olathe
Gunnison River
ASPINALL UNIT
Crystal Res.
Montrose
Gunnison Tunnel
Morrow Point Res.
Blue Mesa Res.
Uncompahgre River
Cimarron River
Ridgway Res.
Cimarron Dredging Project Area
4 0 4 8 Miles

TABLE OF CONTENTS

TABLE OF CONTENTS (Cont.)

FIGURES

TABLES

CHAPTER 1 - INTRODUCTION

Proposed Action

This Final Environmental Assessment (EA) reviews the proposed action of removing approximately 11,000 cubic yards of deposited material from the upper end of Crystal Reservoir below Morrow Point Dam's tailrace in Montrose County, Colorado. The Bureau of Reclamation (Reclamation) prepared this EA in cooperation with other federal and state agencies to comply with the National Environmental Policy Act (NEPA), Endangered Species Act, and related U.S. Department of the Interior policies and regulations. If, based on this analysis, Reclamation concludes the proposed action would have no significant impact on the human environment, preparation of an Environmental Impact Statement would not be required before the action could be implemented.

Morrow Point Dam was completed in 1968 as part of the Wayne N. Aspinall Unit (Aspinall Unit) of the Colorado River Storage Project (CRSP). Blue Mesa, Morrow Point and Crystal Reservoirs on the Gunnison River are operated as a system to comprise the Aspinall Unit. Other features of the CRSP include Flaming Gorge Dam on the Green River, Navajo Dam on the San Juan River, and Glen Canyon Dam on the Colorado River.

The Aspinall Unit is located in Gunnison and Montrose Counties, Colorado, along a 40-mile reach of the Gunnison River as shown on the Frontispiece Map. The Unit is operated by Reclamation, while lands surrounding the reservoirs are managed by the National Park Service as the Curecanti National Recreation Area. Reclamation operates the reservoirs and power plants to meet the following authorized purposes:

- regulate the flow of the Colorado River
- store water for beneficial consumptive uses
- allow the Upper Basin states to use the apportionment made to and among them through the Colorado River Basin Compact and Upper Colorado River Compact
- provide for the reclamation of arid and semiarid land
- provide for flood control
- provide for fish and wildlife enhancement and public recreation
- generate hydropower

Purpose and Need

Reclamation has identified a need to restore the tailrace below Morrow Point Reservoir to its original post dam construction elevation. Reclamation proposes to remove approximately 11,000 cubic yards of gravel deposited in the upper end of Crystal Reservoir at the confluence of the Gunnison and Cimarron Rivers (See Figure 1). The purpose of the project is to lower the water elevation in the power plant tailrace to improve hydropower generating efficiency.

Figure 1. - Confluence of the Gunnison and Cimarron Rivers

Background Information

Morrow Point Dam - Morrow Point Dam was completed in 1968 as part of the Aspinall Unit of the Colorado River Storage Project. The dam is a double-curvature structure with a maximum thickness of about 50 feet. Unusual dam features include an overhang on the downstream face, an undercut on the upstream face, unusual thickness, and four large openings near the top of the dam for a spillway.

The spillway consists of four 15 by 15 foot submerged orifice openings through the top central portion of the dam, each controlled by a 15 by 16.83-foot fixed-wheel gate. The spillway discharge falls about 365 feet into a stilling basin at the toe of the dam. A 65-foot-high weir located about 320 feet downstream from the dam controls the depth of the water in the stilling basin.

A series of high flow events (including 1983-1984) in the Cimarron River, moved large quantities of gravel and other material from the Cimarron River and deposited it at the

confluence with the Gunnison River (upper end of Crystal Reservoir) (See Figure 1). The deposited material created a backwater pool in the dam's tailrace. This has resulted in losses in power production efficiencies at Morrow Point Dam and ability to dewater the spillway stilling basin.

Curecanti National Recreation Area - The Curecanti National Recreation Area includes the areas surrounding Blue Mesa, Morrow Point and Crystal Reservoirs, and provides recreation for over 1 million visitors annually. Administered by the National Park Service, activities include boating, fishing, sightseeing, and hiking.

Black Canyon of the Gunnison National Park - The Black Canyon of the Gunnison National Park (formerly National Monument until 1999) was originally established by Presidential Proclamation No. 2033 (47 Stat 2558) to preserve the spectacular gorge and other objects of scenic, scientific, and educational interests. In October 1999, the Monument was designated a National Park by an act of Congress through enactment of P.L. 106-76. The National Park includes 14 miles of the Gunnison River downstream from the Aspinall Unit.

Gunnison Gorge National Conservation Area and Wilderness - The Bureau of Land Management (BLM) manages the Gunnison Gorge National Conservation Area (NCA) and Wilderness located immediately downstream of the Black Canyon of the Gunnison National Park. The NCA includes an additional 24 miles of the Gunnison River from the Park's western boundary down to the Town of Austin.

Gold Medal Trout Fisheries - The State of Colorado has classified the Gunnison River from the upper end of the Black Canyon of the Gunnison National Park to the confluence of the North Fork of the Gunnison River as a Gold Medal trout fishery for brown trout.

Endangered Fishes - Colorado pikeminnow and razorback sucker are listed as endangered in the Gunnison River. Critical habitat for the Gunnison River was designated by the U.S. Fish and Wildlife Service below the project area from about Delta, Colorado to the Gunnison River's confluence with the Colorado River in Grand Junction, Colorado. A fish ladder was constructed in 1996 by the Upper Colorado River Endangered Fish Recovery Program to provide passage upstream of the Redlands Diversion on the Gunnison River near Grand Junction.

Downstream Diversions - Diversion downstream of the project area include the Gunnison Tunnel which supplies irrigation water to the Uncompahgre Project near Montrose, Colorado; Hartland Diversion which provides irrigation water near Delta, Colorado; and the Redlands Diversion which provides water for power and some irrigation to the Redlands near Grand Junction, Colorado.

Public Scoping

Reclamation identified issues and concerns with participation from individuals, agencies, and organizations who may be affected by the project. The Cimarron Dredging Project was first presented to the general public at the January 2001 Aspinall operations meeting. On January 25, 2001, a public scoping letter was mailed to interested parties and was published in the *Grand Junction Daily Sentinel*. Comments were requested to be received by March 2, 2001.

Each issue and concern described below is discussed in Chapter 3. More information on scoping activities is included in Chapter 4.

Water Resources

The proposed action has the potential to negatively affect water quality downstream of Crystal Reservoir. Concerns focused around total suspended solids (TSS), total dissolved solids (TDS), and dissolved oxygen (DO) levels below Crystal Reservoir.

The Gunnison Tunnel, operated by the Uncompahgre Valley Water Users Association (UVWUA) below Crystal Reservoir, diverts water for irrigation and municipal use in the Montrose and Delta areas.

Trout Fisheries

The proposed action has the potential to negatively affect the Gunnison River Gold Medal Trout fisheries from Crystal Reservoir downstream to the confluence with the North Fork of the Gunnison River. Concerns focused primarily around water quality issues as they affect trout spawning and recruitment. Fall brown trout and spring rainbow trout spawning success could be greatly reduced if suspended sediments travel downstream into trout spawning areas and smother nests (redds). Reducing flows after spawning also has the potential to affect spawning success.

Recreation Resources

The Gunnison River is a valuable recreation resource. Rafting, floatfishing, walk-wade fishing, hiking, and sightseeing are all common uses on the Gunnison River in the Curecanti National Recreation Area, the Black Canyon of the Gunnison National Park, and the Gunnison Gorge. If the Gunnison River below Crystal Reservoir becomes cloudy because of increased sediments; fishing, rafting, and the overall aesthetics of the Gunnison River could be negatively affected.

Land and Facility Resources

The access road to Morrow Point is a narrow two-lane paved road. The road is used by Reclamation to operate Morrow Point Dam and is also used by recreationists to access the upper end of Crystal Reservoir. The road may need to be temporarily closed to the public during

dredging activities for public safety. In addition, the road may be damaged by the volume of heavy trucks that would be used to transport the dredged material off-site.

Socioeconomic Resources

The Bureau of Reclamation generates electricity from the Aspinall Unit which is marketed by the Western Area Power Administration. Reduced flows during dredging activity have the potential to affect power generation and consequently CRSP repayment schedules. Recreational guide services have developed in conjunction with the recreational opportunities in the Gunnison River. Rafting and fishing trips during the dredging activity could be negatively affected by cloudy waters from increased sediments, thus affecting guiding revenues.

CHAPTER 2 - ALTERNATIVES

This chapter describes the **No Action** and **Proposed Action** alternatives for removing material deposited from the tailrace below Morrow Point Dam at its confluence with the Cimarron River. No other alternatives were identified that met the purpose and need.

No Action

Under the No Action Alternative, Reclamation would not remove about 11,000 cubic yards of gravel from the upper end of Crystal Reservoir below the Morrow Point Dam tailrace. The deposited material would continue to create a pool of water from the Cimarron River to Morrow Points Dam's stilling basin. Morrow Point's generator power efficiencies would continue to be reduced. Power efficiency losses are estimated at 1.14%, which represents about 5,608 megawatt hours (mwh) per year in power generation at a value of about $98,539 per year.

Proposed Action

The Proposed Action would dredge about 11,000 cubic yards of gravel and other materials from the end of Crystal Reservoir below Morrow Point Dam at its confluence with the Cimarron River. The Gunnison River would be returned to its original construction elevation (6,744.3 feet). Dredging activities would begin October 1, 2001 and be completed by November 30, 2001. If weather or other circumstances prevent completion of the dredging project by November 30, 2001, additional dredging would occur in October and November, 2002.

Dredging would be limited to the river channel from about 200 feet upstream of the Gunnison River's confluence with the Cimarron River to about 1,000 feet below the river's confluence. Reclamation or a contractor would dredge the deposited material using an excavator and access the project area using an existing construction road. Dump Trucks would be used to transport the dredged material from the Gunnison River to the paved parking area above and transported off-site to Colorado Department of Transportation stockyard. Dredged material would be donated to the Colorado Department of Transportation who would use the material on existing road projects.

The existing construction road from the parking area to the Gunnison River would require minor improvements to accommodate the heavy equipment and dump trucks.

Environmental Commitments

The proposed action includes measures as needed to:

- monitor and protect water quality in the Gunnison River
- protect downstream water rights including diversions at the Gunnison Tunnel
- minimize negative effects to trout resources below Crystal Reservoir
- minimize negative effects to on-site and downstream recreational uses
- minimize effects to guiding revenues
- minimize effects to power generation
- maintain delivery of a minimum 300 cfs of water over the Redlands Diversion Dam between July 1 and October 31, in compliance with Contract No. 95-07-40-R1760 for the benefit of endangered fishes.

The degree to which the proposed measures would alleviate concerns for potentially affected resources and interests is discussed with the applicable sections of the next chapter.

To comply with the Endangered Species Act, Reclamation consulted with the U.S. Fish and Wildlife Service. Per consultation with the Army Corp of Engineers (ACOE 2001), permits under the Clean Water Act are not required as long as dredged material is not deposited within the high water line. However, a Nation-wide 33 permit was issued to allow Reclamation to move and reshape deposited material in the river to allow for easier access.

CHAPTER 3 - AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

General

This chapter discusses resources that may be affected by actions taken to restore the upper end of Crystal Reservoir below Morrow Point Dam to its original post-dam construction elevation. During preparation of this Draft EA, information on issues and concerns was received from affected water users, resource agencies, private interests, recreational interest groups and citizens, and other parties (see Chapter 4, Consultation and Coordination, for further details).

For each resource, the potentially affected area, and/or interests are identified, existing conditions are described, and impacts expected under the No Action Alternative and Proposed Action Alternative are discussed. This chapter concludes with a summary comparison of the alternatives and a list of mitigation measures.

The project is located in Montrose County, Colorado along the Gunnison River within Reclamation withdrawn lands of the Aspinall Unit. Montrose County has a population of about 31,500 (U.S. Census 2001). Montrose is the largest city in the area with a population of about 12,000. The county is primarily rural in nature with an agricultural base. The Uncompahgre Project, constructed in the early 1900's, provides irrigation water for about 86,000 acres by diverting water from the Gunnison River primarily through the Gunnison Tunnel, and the Uncompahgre River. Tourism and recreation are also a significant source of economic activity for the area with the Gunnison River, Black Canyon of the Gunnison National Park, Curecanti National Recreation Area, and the San Juan range of the Rocky Mountains nearby.

Aspinall Unit and Morrow Point Reservoir

The Aspinall Unit of the Colorado River Storage Project consists of three reservoirs (Blue Mesa, Morrow Point, and Crystal) along a 40 mile stretch of the Gunnison River (see Figure 2).

Morrow Point Dam was completed in 1968 as part of the Aspinall Unit of the Colorado River Storage Project. The dam is a double-curvature structure constructed with 18 blocks separated by vertical transverse contraction joints spaced at 40-foot centers except for the center block, which is 30-feet wide.

The spillway consists of four 15 by 15 foot submerged orifice openings through the top central portion of the dam, each controlled by a 15 by 16.83 foot fixed-wheel gate. The spillway discharge falls about 365 feet into a stilling basin at the toe of the dam. A 65-foot-high weir

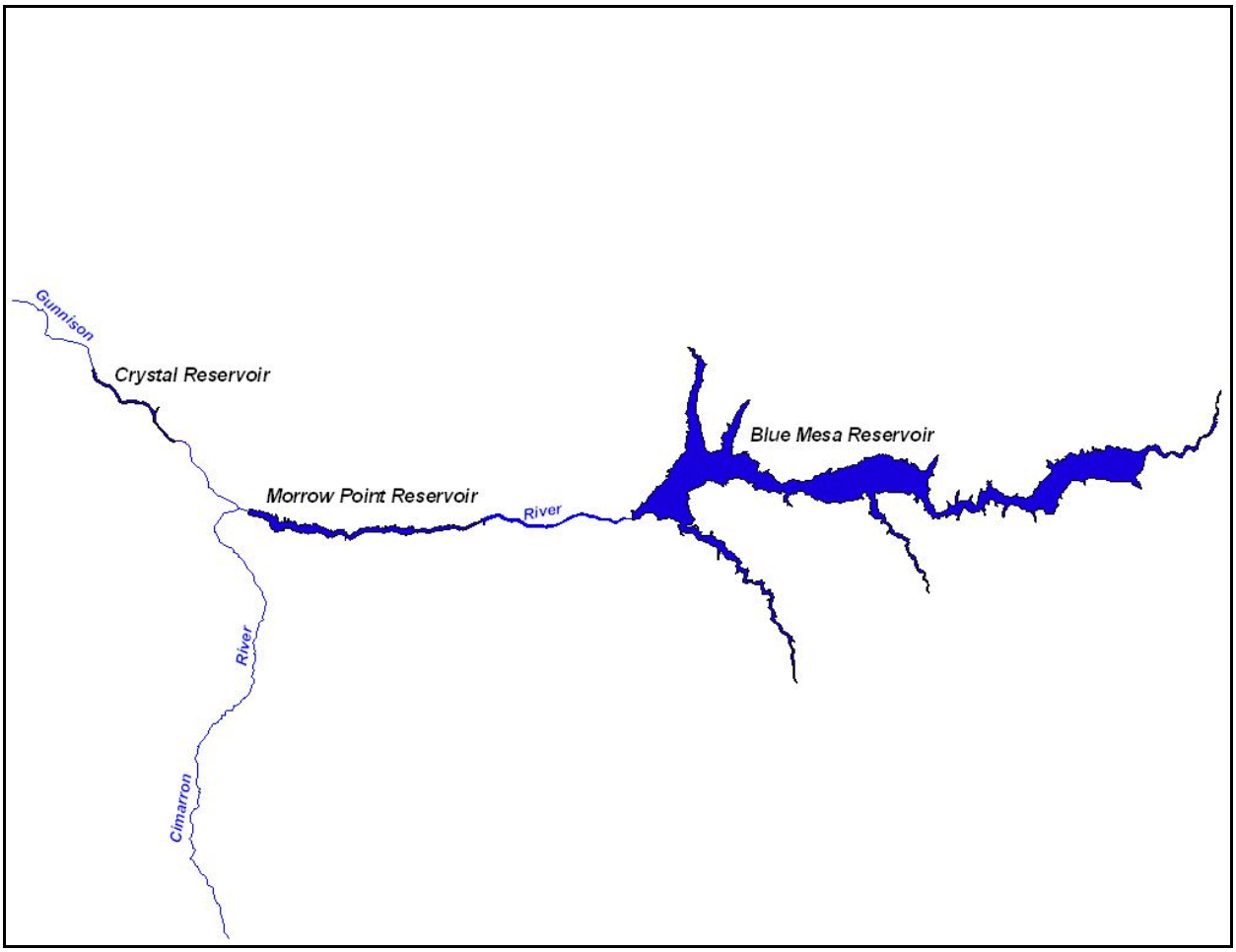

Figure 2. - Reservoirs of the Aspinall Unit

(concrete wall) located about 320 feet downstream from the dam controls the depth of the water in the stilling basin (USAR 1981). In the fall of 1965, about 1,200 feet of the Gunnison River (tailrace) downstream from the dam was excavated to lower the tail water and increase head on the turbines. The channel work lowered the tail water elevation about 10 feet to an elevation of 6743 feet with a slope of 2 feet for every 1000 feet (see Appendix A). Excavation for the channel work required a 35-foot minimum bottom width trapezoidal channel. Since the construction of Morrow Point, high flows in the Cimarron River have transported gravel and other materials into the old Gunnison River channel (upper end of Crystal Reservoir) at its confluence with the Cimarron River. The gravel disposition has resulted in raising the surface water elevation in the tail bay, causing back pressure on the generator turbines, that in turn, has reduced power production efficiency of the generators. Power efficiency losses to the United States are estimated at about 1.14%, which represents about 5,608 megawatt hours per year in power generation at a value of about $98,539 per year. The goal of the proposed project is to return the tailrace to the 1965 elevation to improve power production efficiency.

Blue Mesa and Morrow Point Dams are operated to provide peaking power, while Crystal Dam is operated to re-regulate water releases in the Gunnison River. Under the proposed action, the Aspinall dams would continue under normal operations, except for Morrow Point Dam which would not release water for a 6 hour period each day. Adjustments in releases from other dams on the system, consistent with existing operating criteria, would be made to absorb the 6 hour dredging window. Water surface elevations at Crystal Reservoir would be maintained at or below the 6743 foot "bottom of channel" elevation during the dredging activities to allow easy access to and removal of the deposited material.

Recreation Resources

The Gunnison River provides various recreational opportunities including fishing, rafting, hiking, and sightseeing. Recreation on the Gunnison River below Morrow Point Dam is managed by the National Park Service, the Bureau of Land Management, and Colorado Division of Wildlife.

The National Park Service manages recreation within the Curecanti National Recreation Area, which includes recreation sites along Blue Mesa, Morrow Point and Crystal Reservoirs. The Curecanti National Recreation Area was developed in conjunction with the construction of the Aspinall Unit. Because of limited public access created by high canyon walls, Morrow Point and Crystal Reservoirs receive very little recreation use. Access is primarily limited to the upper ends of Morrow Point and Crystal Reservoirs, and the East Portal of the Gunnison River below Crystal Reservoir. Recreational use at the upper end of Crystal Reservoir is primarily limited to the spring through fall.

The Black Canyon of the Gunnison National Park (Park) is located downstream of the East Portal of the Gunnison Tunnel and is managed by the National Park Service. The Park was established to preserve the spectacular gorge and other scenic, scientific, and educational interests. The Park includes 14 miles of the Gunnison River.

An additional 26 miles of the Gunnison River downstream of the National Park is managed by the BLM. The river flows through the BLM's 57,700 acre Gunnison Gorge National Conservation Area and Wilderness. BLM manages the NCA and Wilderness to permanently protect and conserve its outstanding scenic, geologic, wildlife, and wilderness resources and to provide a diverse range of recreational opportunities including wilderness whitewater boating and camping, floatfishing, and walk-wade fishing, hiking, and sightseeing.

The Colorado Division of Wildlife manages recreational fishing on the Gunnison River. Recreational fishing is discussed in greater detail in the Wildlife Section of this Chapter.

The No Action Alternative would not affect recreational resources. The Proposed Action could negatively affect recreational uses if the Gunnison River becomes cloudy (turbid). If the waters

are turbid, fishing success may be reduced and the river may become difficult to navigate by boat, thus reducing the quality of the recreational experience. In addition, access to the upper end of Crystal Reservoir would be restricted during the dredging period (approximately 6 weeks). Restricting dredging activities to October and November would reduce the likelihood of conflicts with recreational uses. Minor impacts to recreation are projected because recreation uses drop sharply in October and November, primarily because of cooler weather associated with the higher mountain elevations.

Water quality is discussed in greater detail in the Water Resources section of this chapter.

Land Use and Vegetation

The project area is located on lands of the United States withdrawn for the construction and operation of the Aspinall Unit. The property is co-managed by Reclamation and the National Park Service for hydropower generation, water storage and recreation.

The canyon was created by the Gunnison River cutting through Precambrian rock. Vegetation resources within the project area are limited because of the nature of the rock canyon walls. Chokecherry (*Prunus virginiana*) , box-elder (*Acer negundo*), narrow-leaf cottonwood (*Populus angustifolia*), and poison ivy (*Rhus radicans*) are common in the canyon along the river banks (NPS 2001). The No Action and Proposed Action are expected to have no effect on land use or vegetation resources.

The proposed action was also evaluated to determine if the dredging activity could start a headcut that would move up the Cimarron River. Material deposited at the confluence of the Cimarron River and upper end of Crystal Reservoir has likely changed the lower portion of the Cimarron River's elevation. It is anticipated that once the deposited material is removed, the Cimarron River will adjust to the change in the downstream elevation to reach a new stream equilibrium. It is predicted that the Cimarron's elevation will more closely resemble its post channel improvement elevation somewhere between the 1965 elevation (Channel Improvement Date) and the post-deposition elevation (after the 1983 high flow event which deposited the material). This change is expected to be minor.

Fish and Wildlife Resources

The Gunnison River and its canyon walls support wildlife including beaver (*Castor canadensis*), mule deer (*Odocoileus hemionus*), stone fly, ringtail cat (*Bassariscus astutus*), great horned owl (*Bubo virginianus*), western fence lizard (*Sceloporus occidentalis*), yellow warbler (*Dendroica petechia*), rainbow trout (*Oncorhynchus mykiss*) and brown trout (*Salmo trutta*) (NPS 2001).

The fishery resource of the Gunnison River below Crystal Reservoir is managed by the Colorado Division of Wildlife (CDOW). This stretch of river has an excellent rainbow and brown trout

fishery. These populations are self-sustaining; however, whirling disease has greatly reduced recruitment for rainbow trout. The CDOW conducts an annual fall (September) survey on the Gunnison River below the Black Canyon of the Gunnison National Park. CDOW does not directly stock Crystal Reservoir; however, Crystal Reservoir does receive fish that survive the entrainment from Morrow Point Reservoir and the Cimarron River. Morrow Point Reservoir has been stocked with kokanee and Colorado River cutthroat trout. Entrainment from Blue Mesa Reservoir also provides a significant number of fish in Morrow Point Reservoir (Hebein 2001).

Fish species lists for both Crystal and Morrow Point Reservoirs are identical even though the sources of species varies. These include: Kokanee (*Oncorhynchus nerkus*), rainbow trout, brown trout, brook trout (*Salvelinus fontinalis*), Colorado River cutthroat trout (*Oncorhynchus clarki pleuriticus*), possibly Snake River cutthroat trout (*Oncorhynchus clarki sp.)*, Mackinaw or lake trout (*Salvelinus namaycush*), longnose sucker (*Catostomus catostomus*), white sucker (*Catostomus commersoni*), bluehead sucker (*Catostomus discobolus*), longnose dace (*Rhinichthys cataractae*), mottled sculpin (*Cottus bairdi*). Hybridized remnants of flannelmouth sucker (*Catostomus latipinnis*) may also be present (McCada 2000, Hebein 2001).

According to Nehring (1988), critical time periods and flows for rainbow and brown trout are as follows:

Table 1 - Rainbow & Brown Trout Critical Time Periods

Species	Life Stage	Critical Time Period	Minimum Flow
Brown	Spawning	Oct 15 - Nov 15	300
Brown	Incubation	Nov 1 - Apr 01	300
Brown	Hatching	Mar 15 - May 15	300
Brown	Fry	May 01 - Jun 15	300
Brown	Juvenile	Jun 15 - Oct 15	300
Brown	Adult	All Year Long	300
Rainbow	Spawning	Apr 01 - May 15	300
Rainbow	Incubation	Apr 15 - Jun 15	300
Rainbow	Hatching	Jun 01 - Jul 01	300
Rainbow	Fry	Jun 15 - Jul 15	300
Rainbow	Juvenile	Jul 15 - Oct 15	300
Rainbow	Adult	All Year Long	300

The gravel bar deposited by the Cimarron River is not considered spawning habitat, primarily because of large fluctuation in releases from Morrow Point Dam (between 0-5,000 cfs) and the water is too cold for spawning.

Brown and rainbow trout may be affected by the proposed action if significant sediments are transported and deposited in key spawning areas downstream of Crystal Reservoir during critical time periods. This could result in eggs laid in redds (nests) being covered with fine silts and depriving the eggs of oxygen. Large amounts of transported sediment could greatly reduce rainbow and brown trout recruitment.

In addition, brown trout and rainbow trout are affected if flows in the Gunnison River are lowered below 300 cfs. Crystal Reservoir will continue to operate as the regulating reservoir, with releases being made based on projected hydrology. Therefore, flows in the Gunnison River below Crystal will be unaffected by the proposed action. Releases from Morrow Point Dam will continue to operate to produce peaking power; however, dredging activities will be limited to periods when water is not being released from Morrow Point Dam. This should aid in limiting the amount of sediments being transported in the Gunnison River. It is also anticipated that most increases in suspended sediments as a result of the dredging activity would settle out in Crystal Reservoir and not affect the Gunnison River downstream. Water quality samples would be taken daily during the dredging activity as described in the Water Quality section of this chapter to monitor changes in water quality.

Dredging activities would be conducted after October 1 and completed no later than November 30 to avoid conflicts with CDOW's annual monitoring program. The CDOW would continue the annual fall sampling of the Gunnison River and would be able to measure effects on brown and rainbow trout recruitment.

To assist in dewatering the dredging site, Crystal Reservoir's water surface elevation would be maintained at or below 6,743 feet. Except while releases are being made from Morrow Point Dam during the project, the first 1,200 feet of the tailrace would be drained. CDOW does not consider the tailrace suitable fish habitat because of the high flows released from Morrow Point Dam (Hebein 2001).

Once the dredging is completed, the backwater pool created by the deposited material will no longer exist. Water in the channel from the dam to the upper end of Crystal Reservoir would be dependant on releases from Morrow Point Reservoir and the water surface elevation of Crystal Reservoir.

Local wildlife may avoid the area during dredging activities; however effects are projected to be short-term and the project would not alter existing wildlife habitat.

Threatened and Endangered Species

Informal consultation with the U.S. Fish and Wildlife Service (2001) identified no threatened and endangered species that could be directly affected by the proposed action. However, if flows in the Gunnison River were reduced and Reclamation was unable to maintain delivery of a minimum 300 cfs of water over the Redlands Diversion Dam between July 1 and October 31, in compliance with Contract No. 95-07-40-R1760 for the benefit of endangered fishes, adverse impacts could result and consultation would need to be reinitiated. Additionally, if flushing flows were needed to remove large volumes of deposited sediments from the Gunnison River, flushing flows could affect the U.S. Fish and Wildlife Service's razorback sucker stocking program. The proposed action would not affect Reclamation's contract to deliver a minimum 300 cfs over the Redlands Diversion Dam and flushing flows are not being considered at this time, therefore, the proposed action is projected to have no effect on threatened or endangered species.

Water Quality

Water quality is good in the Gunnison River. The Aspinall Unit acts as a sink for suspended solids and provides constant cold water releases. The clarity (total suspended solids and total dissolved solids) and temperature of the Gunnison River creates an excellent trout fishery and provides recreational opportunities for fishing, rafting, and other forms of recreation.

The Gunnison River and the three reservoirs are classified by the Colorado Water Quality Control Commission as Aquatic Life Cold 1, Recreation 1, Water Supply and Agriculture, and designated as Antidegradation Reviewable waters (previously a High Water Quality 2 designation). The Aquatic Life Cold 1 classification denotes waters which support a wide variety of cold water biota. Recreation 1 waters are suitable for primary human contact including swimming, kayaking, rafting, and water-skiing. The Water Supply and Agriculture classifications denote that the waters are suitable for such purposes. The antidegradation reviewable designation recognizes waters which are not outstanding state or national resources, but exhibit high quality. These waters yield to the antidegradation review process, a process which allows degradation of water quality if economic or social benefits override water quality benefits (Long etal. 1995).

Significant changes in water quality could negatively affect downstream trout fisheries and river rafting. A cloudy (high levels of suspended solids) Gunnison River would reduce angling success, make river running more difficult (cannot see rocks and other obstructions), and generally detract from the scenic views in the Black Canyon of the Gunnison National Park and the Gunnison Gorge.

Associated with the proposed action, in April 2001, Reclamation began monitoring water quality parameters listed below on a monthly basis at 7 sites within the Aspinall Unit (See Figure 3):

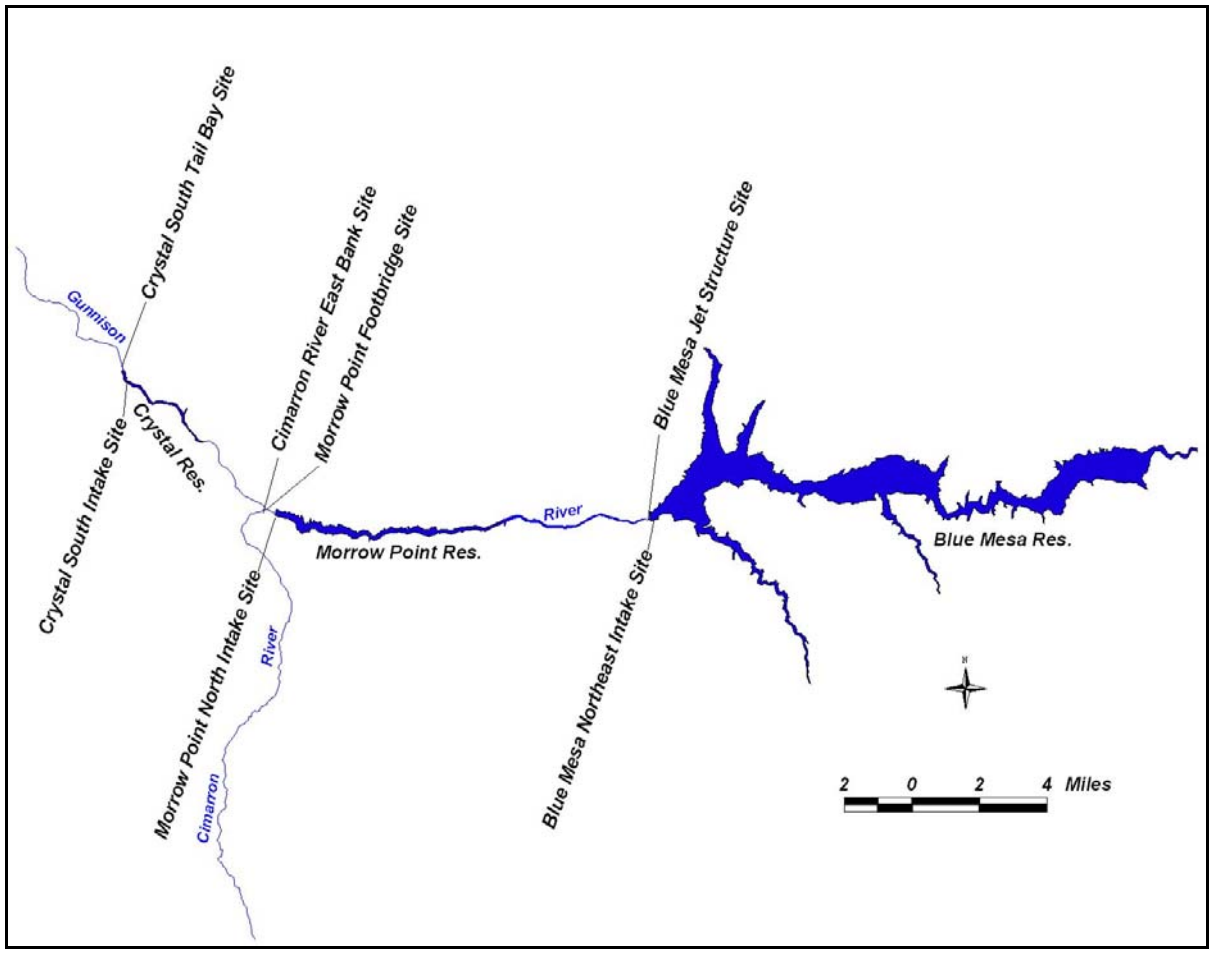

Figure 3 - Aspinall Unit Water Quality Monitoring Sites

- ambient air temperature
- water temperature
- pH
- conductivity
- total dissolved solids
- total suspended solids
- calcium
- magnesium
- total hardness
- dissolved oxygen

Water quality would continue to be collected on a monthly basis prior to implementation of the project. Initially, during dredging activities, water quality would be sampled on a daily basis to monitor any changes as a result of the proposed action. If no major changes in water quality are

observed, Reclamation may decrease the frequency of water quality sampling from daily to weekly. In addition, Reclamation would visually monitor the water quality in Crystal Reservoir. If the lower end of Crystal Reservoir becomes significantly turbid (cloudy), dredging activities would be stopped to reduce the amount of suspended sediments being transported below Crystal Dam. Once the reservoir began to clear, dredging activities could resume.

Water Rights

Water rights in the Upper Gunnison Basin include both direct flow and storage rights. One of the project authorizations for the Aspinall Unit was to store Upper Basin States water. The Aspinall Unit would continue under normal operations, providing water to meet downstream obligations (water rights, delivery contracts, etc.). The proposed action is projected to have no effect on water rights or Aspinall water deliveries.

Historical and Cultural Resource Properties

The proposed project is located near the Curecanti Archeological District (District). The District consists of a complex of over 200 recorded archeological sites and encompasses 6,750.25 acres. The District was listed on the National Register of Historic Places on August 15, 1984. Prehistoric sites dating back to 8,000 B.C. represent a significant change in the understanding of how these early people used Colorado's high mountain valleys. A large collection of artifacts from the area are in storage at the Midwest Archeological Center in Lincoln, Nebraska. In addition, thirty-nine sites generally associated with the Ute Tribe and classified as temporary camps have been identified in the Black Canyon of the Gunnison National Park (NPS 1997).

Historic resources within the Curecanti National Recreation Area illustrate three great human achievements—building narrow gauge railroads, dam building/engineering, and homesteading/saw milling (NPS 1997). The proposed project is in the Cimarron area and is a focal point for illustrating the role of the narrow gauge railroad in the development of western Colorado. A display at Cimarron depicts the rise and fall of the narrow gauge railroad as a mountain transportation system.

No impacts to cultural or historic resources are projected because 1) the project would be completely within a previously disturbed area, 2) dredging activities would be conducted within the high water line of the Gunnison River, and 3) vehicles and equipment would use existing roads to transport the dredged material off-site.

Indian Trust Assets

Indian trust assets are legal interests in property held by the United States for Indian Tribes or individuals. Reclamation and other Federal agencies share the responsibility to protect these assets. There have been no trust assets identified in the project area, and therefore no impact on

these assets is predicted.

Environmental Justice

Executive Order 12898 on Environmental Justice provides that Federal agencies analyze programs to assure that they do not disproportionately adversely affect minority or low income populations or Indian Tribes. There are no potentially affected populations in the project area and no adverse effects related to environmental justice are predicted.

Socioeconomic

Socioeconomic resources related to the proposed action can be broken into two general categories: 1) Hydropower Production from the Aspinall Unit and 2) Commercial Guiding Services for fishing and float guides.

Hydropower Production

The Aspinall Unit is operated to meet daily peak power demands, and power production and marketing is managed by the Western Area Power Administration. Peaking power means that higher releases are made at those times during the day when energy demands are highest. Typically, peak power periods are from 7:00 a.m. to 10:00 p.m. Blue Mesa and Morrow Point Dam releases are made during this time period to meet power demands. This results in large changes in flows between Blue Mesa Reservoir and Morrow Point Reservoir, and between Morrow Point Reservoir and Crystal Reservoir.

Crystal Reservoir is operated differently than the other two reservoirs. Crystal Reservoir provides storage space for smoothing peaking power releases from Morrow Point Reservoir to relatively uniform flows required to provide the existing Uncompahgre Project diversions through the downstream Gunnison Tunnel in the summer months. Within a 24 hour period, releases for power production from Blue Mesa Dam can fluctuate between 0 and 3,400 cfs, Morrow Point Dam between 0 and 5,000 cfs, while Crystals releases typically fluctuate in the 50 cfs range. When the Aspinall Unit is at maximum power production, daily fluctuations in releases from Crystal Dam may increase to the 200 cfs range.

Under the proposed action, dredging activities would be restricted to a 6 hour window when releases from Morrow Point Reservoir were at zero. The Western Area Power Administration does not foresee that there will be any financial impacts to CRSP during the planned dredging. There would be no overall loss in CRSP generation during the dredging period; generation patterns within the CRSP system would be altered during that period, consistent with existing operating parameters. The improved power efficiency, after completion of the dredging project, is expected to result in an estimated 5,608 MWh per year increase in power generation. At today's rates, this amount of generation equates to about $98,539 per year.

If the Aspinall Unit was needed to respond to a power system emergency, dredging activities would be stopped until the 6 hour dredging window was again available. This would also apply to any emergency that would require a change in operations that would make the 6 hour dredging window unavailable.

Commercial Guiding Services

Commercial guiding services have developed on the Gunnison River as a result of the high quality of fishing, rafting, and sightseeing available to the general public. The majority of commercial float and walk-wade fishing use on the river occurs within the BLM's Gunnison Gorge NCA and Wilderness. These activities are popular throughout the summer (May - early October) with the highest annual use of the river by both commercial and private float and walk-wade fishers occurring during early June (stonefly hatch period). Floatfishing by commercials is also extremely popular in late July, August and September. Any action that would reduce fishing success, river navigability, or the aesthetic nature of the river may have a negative effect on commercial guiding services.

The majority (79.4%) of visitation at Curecanti National Recreation Area and the Black Canyon of the Gunnison National Park, Management Area occur between May and September as illustrated in Figure 4. Effects to commercial guiding services are projected to be greatest during this time period as well. Therefore, avoiding dredging activities from May through September

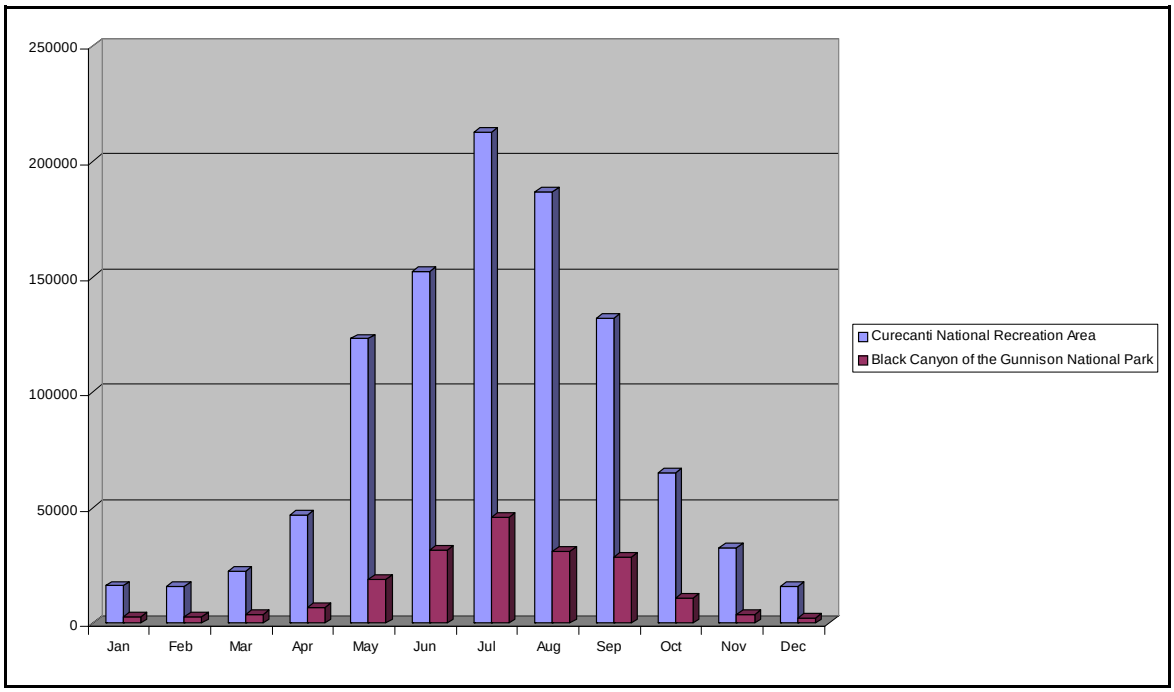

Figure 4 - 2000 Visitation Statistics in Persons/Month for Curecanti National Recreation Area and Black Canyon of the Gunnison National Park

would reduce the economic impact felt by commercial guides if water quality was affected as a result of the proposed action.

Cumulative Impacts

Cumulative impacts are the impacts on the environment which result from the incremental impact of the action, when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

Past and present activities that have affected river-related resources in the area include land irrigation, urban development and recreational activities associated with construction and operation of the Aspinall Unit and the Uncompahgre Project, and activities associated with the Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin. Planned activities include the Morrow Point Reservoir trash rack cleaning project, the Morrow Point Reservoir drawdown criteria project, and additional Recovery Program activities.

Implementation of all or any of these projects has the potential to affect the human environment including but not limited to water quality, water rights, socioeconomics and wildlife resources. Cumulative impacts associated with the implementation of the Cimarron Dredging Project are anticipated to be short-term and too small to measure.

Summary and Environmental Commitments

In summary, the primary effect of the proposed action would be to restore the channel of the Gunnison River to its 1965 elevation thus improving power generation efficiencies. The project is designed and would be implemented to avoid or reduce impacts or harm to recreation, fish and wildlife resources, water quality, and power production. There will be no effect on water rights, water uses, or water supplies.

The following environmental and social/economic commitments are included in the project plan.

‣All construction contracts would have “Stop Work” clauses that would require the contractor to stop dredging activities if threatened or endangered species were encountered. If this would occur, construction would be halted until additional consultation with the Service was completed.

‣All construction contracts would have “Stop Work” clauses that would require the contractor to stop construction activities if cultural resources were encountered or affected. If this would occur, construction would be halted until consultation with the State Historical Preservation Officer was completed.

‣All construction contracts would have “Stop Work” clauses that would stop dredging activities

if Reclamation, through its water quality monitoring program, determines that continued dredging activities would degrade water quality to a level to significantly affect fisheries including brown trout spawning success.

▸Dredging activities would be restricted to a time period between October 1 and November 30 to reduce conflicts with recreationists, fisheries resources, and water users.

▸Flows in the Gunnison River below Crystal Dam would remain within the general operations of the Aspinall Unit and would not be modified for the Cimarron Dredging Project. Releases would be based using existing operation criteria for the Aspinall Unit.

▸Water quality measurements will be recorded monthly prior to the implementation of the proposed action. Initially, during the dredging activity, water quality measurements will be recorded daily to document any changes in water quality. If significant changes in water quality are not observed, Reclamation may reduce the water quality sampling to weekly. In addition, daily visual observations of Crystal Reservoir would be made. If lower end of Crystal Reservoir becomes turbid (cloudy), dredging activities would be stopped. Once the reservoir began to clear, dredging activities would resume.

▸In-river activities (dredging, etc.) will be limited to periods when no releases are made from Morrow Point Reservoir to protect water quality in the Gunnison River below Crystal.

▸The water surface elevation of Crystal Reservoir will be maintained at or below 6,743 feet during the proposed action to assist in dewatering the dredging site and protecting water quality. Full pool elevation at Crystal Reservoir is 6,755 feet.

▸The condition of the paved two-lane access road to Morrow Point Dam would be monitored throughout the project period. Road damage that may occur as a result of heavy equipment traffic, would be repaired by Reclamation or its contractor as appropriate.

▸Road closures and/or traffic control (flagging) will be implemented during dredging activities and when transporting the dredged material off-site.

▸The parking lot where the dredged material would be temporarily stored, would be cleaned and repaired as appropriate. The parking lot would be broomed and picked up, washing the fines and silt over the embankment would not be allowed.

▸The contractor, prior to beginning work, would submit to Reclamation for approval a “spill containment plan” to protect the river from oil and/or fuel contamination from excavating, haul vehicles, and storage facilities.

▸Reclamation would notify and inform agencies, individuals and the public prior to and during dredging activities using press releases, mailing lists, and existing Aspinall facsimile numbers.

CHAPTER IV - CONSULTATION AND COORDINATION

General

The Cimarron Dredging Project was first presented to the general public at the January 2001 Aspinall Operations meeting. The Aspinall Operations meetings are held three times a year between Reclamation, local, state and federal agencies, water users, environmental organizations, recreationists, and other interested parties. On January 25, 2001, a public scoping letter was mailed to interested parties and was published in the *Grand Junction Daily Sentinel*. Comments were requested to be received by March 2, 2001.

Comments on the Draft EA were addressed and incorporated as follows:

Colorado Water Conservation Board (CWCB)

Comment 1: The CWCB has some minor concerns with the potential to start a headcut that would move up the Cimarron River. The CWCB has a 16 cfs instream flow on the Cimarron River that runs from the Gunnison confluence upstream 3.7 miles to the confluence with the Little Cimarron River. The CWCB would therefore like to see the potential for headcutting up the Cimarron addressed in the Draft EA.

Response: The potential for a headcut to start in the Cimarron River was evaluated. Discussion on the headcut issue was added to the Land Use and Vegetation Section of the EA.

Comment 2: It would be helpful if the Frontispiece map showed some of the water diversions in the Delta area and the Redlands Diversion down near Grand Junction. Also, critical habitat for endangered fish should be identified.

Response: The Frontispiece map was modified to show the Hartland Diversion near Delta and the Redlands Diversion. Endangered fish critical habitat for the Gunnsion River was also identified.

Comment 3: Page 1, Proposed Action - We suggest that the bulleted authorization purposes be broken out into "primary and incidental or secondary" purposes consistent with the Colorado River Storage Project Act. Also, the 3rd bullet needs to include reference to the Upper Colorado River Compact.

Response: The authorized purposes are not listed in any particular order. Reclamation has the responsibility to meet all authorized purposes, therefore primary and incidental or secondary purposes are not presented. Upper Colorado River Compact was added to the third bullet.

Comment 4: Page 3, Background Information - We suggest brief mention of critical habitat for the four endangered Colorado River fishes and the Redlands fish ladder and the smaller water diversions in the Delta area.

Response: A brief discussion of critical habitat for Colorado pikeminnow and razorback sucker, and the Redlands fish ladder was added to the Background Information section. Critical habitat for bonytail and humpback chub was not designated for the Gunnison River.

Comment 5: Page 4, Socioeconomic Resources - We suggest modifying the 2nd sentence as follows, " Reduced flows during dredging has the potential to adversely affect their power revenues and consequently CRSP repayment schedules.

Response: "Consequently CRSP repayment schedules" was added to the 2nd paragraph. Discussion with WAPA and CREDA determined that the 6 hour daily window needed during the dredging period would not adversely affect power revenues. Additional releases from other dams on the system would be made to adjust for the 6 hour window release shutdown from Morrow Point Dam.

Comment 6: Page 5, No Action, last sentence - add "year" following "per".

Response: Year was inserted into the sentence.

Comment 7: Page 9, 1st paragraph - We suggest additional discussion concerning the 6-hour shut down period for dredging. How will this impact peaking operations of the unit and ability to balance the power grid? Also, what will happen during emergency situations in southern California, are there are any concerns or other considerations under these circumstances.

Response: Additional discussion of the 6-hour shut down period was added. If emergency situations require changes in operations of the Aspinall Unit, the dredging project will stop until the emergency is addressed.

Comment 8: Page 15, Water Rights - We suggest that the language here be strengthened. Language to the effect that adequate water will be released from the Aspinall Units to downstream users in a manner that will have no adverse effect on water rights.

Response: No changes in Aspinall's downstream water users are projected as part of the dredging project, therefore no affect was predicted. Releases made from Crystal will be made under normal operating criteria. "Water rights" was changed to "obligations (water rights, delivery contracts, etc.)".

Comment 9: Page 18, Summary of Environmental Commitments - Suggest modifying 1st bullet as follows, "All construction contracts would have "Stop Work" clauses that would require the contractor to stop dredging activities if threatened or endangered species are encountered or adversely affected. If this occurs, construction would be halted until further consultation with the Service can be completed. The Service will agree to give this additional consultation some priority given the limited window during which dredging is expected to occur."

Response: "Construction" was changed to "Dredging" and "or affected" was added. "Adversely affected" was not added because Reclamation would be required to consult with the Service for any affect under the Endangered Species Act. Reclamation feels that it is not appropriate to make the statement "the Service will....." ,. If necessary, Reclamation will consult with the Service as outlined in Section 7 of the Endangered Species Act. If formal consultation is necessary, the project would likely be delayed until the following year or until the consultation was completed.

Comment 10: Page 18, Summary of Environmental Commitments - 3rd bullet should probably be expanded to include all fisheries with perhaps special emphasis on Brown Trout spawning.

Response: Sentence was restructured to include all fisheries.

Bureau of Land Management (BLM)

Comment 1: After reviewing the document we feel that most of our concerns are covered but in a very general manner. We would like to re-emphasis our earlier request that BR make a sincere effort to provide timely and detailed notification to concerned agencies, interested parties, and publics, prior to and during the proposed dredging activity. This and other concerns are detailed in our previous correspondence to you regarding this project, which we would like to request be made part of our comments on the draft EA.

Response: BLM's previous correspondence is attached in the Appendix. As part of the NEPA process, concerned agencies, interested parties, and publics will be notified prior to and during the dredging activity. Concerned parties have received the draft EA, and will receive a copy of the Final EA and "Finding of No Significant Impact". Press release, mailing lists and facsimile lists will be used to inform and update agencies and the public about the dredging activity. This was added to the list of environmental commitments.

Comment 2. Page 3 - Replace "Gunnison Gorge Special Recreation Area" with "Gunnison Gorge National Conservation Area and Wilderness." Add "the BLM manages the Gunnison Gorge National Conservation Area (NCA) and Wilderness located immediately downstream of the Black Canyon of the Gunnison National Park. The NCA includes an additional 24 miles of the Gunnison River from the Park's western boundary to the Town of Austin".

Response: Changed.

Comment 3: Page 4,Recreation Resources - Add "float fishing, walk-wade fishing" between "rafting" and "hiking"

Response: Added to the sentence.

Comment 4: Page 9, Recreation Resources - .....An additional 26 miles of the Gunnison River ..... downstream of the National Park is managed by the BLM. The river flows through the BLM's 57,700 acre Gunnison Gorge National Conservation Area and Wilderness. BLM manages the NCA and Wilderness to permanently protect and conserve its outstanding scenic, geologic, wildlife, and wilderness resources and to provide a diverse range of recreational opportunities including wilderness, whitewater boating, and camping, floatfishing, and walk-wade fishing, hiking, and sightseeing.

Response: Changed.

Comment 5: Page 17, Commercial Guiding Services - Add "The majority of commercial float and walk-wade fishing use on the river occurs within the BLM's Gunnison Gorge NCA and Wilderness. These activities are popular throughout the summer (May - early October) with the highest annual use of the river by both commercial and private float and walk-wade fishers occurring during early June (stonefly hatch period). Floatfishing by commercials is also extremely popular in late July, August and September.

Response: Added.

National Park Service (NPS)

Comment 1: Page 3, Paragraph 3: states "The Black Canyon of the Gunnison National Park (formerly National Monument until 1999) was created by Presidential Proclamation No. 2033 (47 Stat 2558)...." To be more accurate, the National Monument was established by Presidential Proclamation, the National Park was designated by an act of Congress through enactment of P.L. 106-79 in October of 1999.

Response: The sentence was restructured to address the Congressional action.

Comment 2: Page 3, Paragraph 4: The area administered by the Bureau of Land Management below Black Canyon of the Gunnison National Park was designated as the "Gunnison Gorge National Conservation Area" through the same act that designated Black Canyon as a National Park.

Response: This was already addressed in the BLM comments.

Comment 3: Page 3, Paragraph 8: states the concerns focused around the water quality issues "below" Crystal Reservoir. Were there no concerns about water quality "within Crystal Reservoir? If not, why?

Response: Based on initial water quality data, no concerns were identified within Crystal Reservoir. Crystal Reservoir serves as a sediment trap for the Cimarron River. In discussions

with the CDOW, increased turbidity in Crystal that may occur as a result as a function of the dredging project is not predicted to adversely affect the fisheries in Crystal. CDOW's concerns focused around limiting the amount of suspended sediments being deposited in the Gunnison River below Crystal; therefore, water quality issues were focused below Crystal. Preliminary water quality data has been added to the Appendices.

Comment 3: Page 4, paragraph 4, Land and Facilities Resources: Will the road be closed to the public during the entire two-month dredging process, or just during the 6 hour per day that dredging activities are taking place?

Response: Traffic control measures (signing, flagging, and road closures) will be used to address public safety issues associated with the narrow road and haul trucks. When equipment and loaded trucks are using the road, the road will be closed to the public. When hauling is not occuring, the road will be open to the public.

Comment 4: Page 5, Paragraph 2, last sentence: should "read...which represents about $98,539 per year in power revenues."

Response: "year" was added.

Comment 5: Paragraph 4: Where is the "off-site" storage area? Do the impacts associated with the off-site storage area need to be evaluated?

Response: The Colorado Department of Transportation will provide the off-site storage area and impacts associated with the off-site storage area need to be evaluated. It is anticipated that the gravel will be stored at an existing CDOT storage site, however, if a new storage site is developed, appropriated NEPA compliance would be needed.

Comment 6: Page 6, Statement 3: Should you be minimizing negative effects to trout resourses "within" as well as below Crystal Reservoir.

Response: Concerns identified associated with trout resources focused around sediments being deposited in the Gunnison River affecting trout spawning success. Trout do not spawn in Crystal Reservoir. Temporary changes in water quality in Crystal as a result of the dredging is not predicted to adversely affect trout resources in Crystal.

Comment 7: Page 9, Paragraph 9, Sentence 1: should read "in conjunction with the construction of the Aspinall Unit.

Response: "the" was added.

Comment 8: Page 9, Paragraph 5, Sentence 1: should read "... below the Black Canyon of the

Gunnison National Park...."

Response: This sentence was changed based on BLM comments.

Comment 9: Page 9, Paragraph 7: Has the effect on private boater access to Crystal Reservoir post-dredging been evaluated? If not, what are the preceived impacts/benefits?

Response: The public has limited access below Morrow Point to launch boats. The road leading down to the tailrace is gated and locked. In addition, high fluctuation in flows below Morrow Point make this site unsafe. Boats have to be carried down to the upper end of Crystal Reseroir. The proposed dredging activity would not change this requirement. When the dredging project is complete, boats may need to be carried further down past the Cimarron River confluence to launch boats because the tailrace would be drained when Morrow Point is not releasing water.

Comment 10: Page 10, Paragraph 6: The Colorado Division of Wildlife does not manage the Gunnison River below Crystal Reservoir. The National Park Service manages the river as part of Curecanti National Recreation Area and Black Canyon of the Gunnison National Park. The Colorado Division of Wildlife does have fisheries management responsibility on the river.

Response: "fishery resource of the" was added to this sentence to clarify management responsibility.

Comment 11: Page 10, Paragraph 6, Sentence 4: should read "...below the Black Canyon of the Gunnison National Park."

Response: "Monument" changed to "Park".

Comment 12: Page 12, Paragraph 6: While the Colorado River cutthroat trout, bluehead sucker, and flannelmouth sucker are not federally listed species, they are State Special Concern Species. As such, the National Park Service must manage them in a manner similar to its treatment of federally listed species. Therefore, potential impacts to these species must be evaluated.

Response: The proposed dredging project is predicted to have no effect on these State Special Concern Species.

Comment 13: Paragraph 1: states "...flushing flows are not being considered at this time..." Is it conceivable that flushing flows will be necessary? If so, what is the contingency in case they are needed?

Response: Flushing flows are not being considered in the mitigation plan. The project is designed to address sediment deposition issues associated with dredging. Dredging activities would be stopped immediately if sediment issues arise and therefore, flushing flows would not

be needed. It is hoped that there will be adequate water in the system for a high spring flow in 2002. Flash floods in August 2001 have put significant amounts of sediments in the system and a high flow in 2002 would be very beneficial.

Comment 14: Page 13: The water quality monitoring design on Crystal Reservoir before and during the dredging is not specific to any depth. At what depth is the sampling taking place? Surface sampling will almost always yield adequate dissolved oxygen values. Water quality profiles within the reservoir may show different values.

Response: Water quality measurements are being taken at a depth of 3 feet with exception to the Cimarron River, which varies between 1-2 feet depth depending on flow. Water quality data has been added to the Appendices.

Comment 15: Page 14, Paragraph 2: What is considered to be "significant" turbidity? This needs to be quantified and based on turbidity levels where impacts to aquatic life occur.

Response: In discussion with CDOW, Reclamation was unable to identify at what level turbidity impacts aquatic life. For the purposes of this document, significant turbidity is defined as the level where sediments begin to be deposited in the Gunnison River below Crystal Reservoir and where significant effects may occur. Reclamation will work closely with CDOW on this determination.

Comment 16: Page 15, Paragraph 2: The proposed project is <u>not</u> within the Curecanti Archeological District. The primary focus of the Archeological District is in the vicinity of Blue Mesa Reservoir.

Response: "within" was changed to "near".

Comment 17: Page 16, Paragraph 1: Affect should read affected.

Response: Changed.

Comment 18: Page 18, Paragraph 3: Isn't the primary effect of the proposed action more accurately to restore the <u>channel of</u> the Gunnison River to its 1965 elevation?

Response: "the channel of" was added to clarify the sentence.

Comment 19: Page 19, Paragraph 1: To reiterate an earlier point, the level of unacceptable turbidity needs to be quantified.

Response: This comment was addressed in response to Comment 15.

Colorado River Energy Distributors Association

Comment 1: Page 4, Paragraph 4, Sentence 2: We are concerned that the Draft EA does not accurately characterize the socioeconomic affects of the Proposed Action with regards to hydropower generation. If generation is reduced from the Aspinall Unit, replacement generation would most likely have to be purchased on the open market, at market prices, by Western at the request of its customers, or by the customers themselves. The EA refers only to "the potential to affect their (Western's) power revenues."

Response: "revenues" was changed to "generation.. It is projected that any reduced generation from the Aspinall Unit would be offset by additional generation at either Glen Canyon or Flaming Gorge Dams if needed.

Comment 2: Page 5, Paragraph 2: The No Action Alternative is described as causing losses, "estimated at 1.14%, which represents about $98,539 per year in power revenues." The impact should be characterized in terms of lost GENERATION, not lost REVENUES. Western's ratesetting methodology requires that it establish rates sufficient to recover its revenue requirement. In essence, if they have reduced generation to market, they have the ability to adjust their rates to recover their fixed revenue requirements. On the other hand, reduced generation has a direct effect on the power customers.

Response: Paragraph was reworded to address concerns.

Comment 3: Page 17, Second Paragraph: Refers to "loss of power revenues" and quantities increased generator efficiency in terms of "power revenues". These references should be revised to refer to "lost generating capability" and "_____" amount of energy", respectively.

Response: Paragraph was reworded to address concerns.

Grand Valley Anglers (Trout Unlimited)

Comment 1: When water quality is lowered it has a direct negative impact on the river, and the rafting and fishing industries are affected due to poor fishing conditions and, of course, the overall aesthetics are impacted.

Response: The impact of high turbidity is recognized, and the time period of October 1 to November 30 was selected to avoid peak recreational use on the Gunnison River. It is not anticipated that water quality will be significantly affected downstream of Crystal Reservoir where the majority of recreational use occurs, however there are uncertainties and monitoring will be conducted..

Comment 2: Another concern is that fine silty material is habitat for the whirling disease host,

tubifex worm. Whirling disease has devastated the rainbow trout population in the Gorge and by increasing sediment the problem may be increased.

Response: The proposed project is designed to eliminate or minimize the amount of sediment transported as a result of the dredging project. The river will be monitored while dredging activities are occuring, and stopped if suspended sediments start to deposit in the Gunnison River below Crystal Reservoir. The great majority of sediment in the Gunnison Gorge is caused by flash floods downstream from Crystal Reservoir and by tributaries upstream from Crystal.

Comment 3: The Report notes that Reclamation will visually monitor the water quality in Crystal Reservoir and if the lower end becomes significantly turbid, dredging activities would be stopped. Often, including the past few weeks when the Cimarron River was running high due to heavy rains in the Cimarron drainage, the reservoir was clear but releases out of Crystal were extremely turbid. The monitoring must be done in the river below Crystal Dam at the East Portal. The report does not identify the agency that would make that decision. The Colorado Division of Wildlife should be consulted for their evaluation.

Response: The Colorado Division of Wildlife was consulted and will continue to be consulted during the dredging project to address concerns to fisheries resources. Monitoring will be conducted at the East Portal below Crystal and is indicated as Crystal South Tailbay Site. Water quality measurements will be taken at the 7 sites identified in the EA before and during the dredging activity. The CDOW will be consulted and the visual monitoring of Crystal will be in addition to the 7 sample sites. It is true that Crystal Reservoir does discharge cloudy water even when reservoir surface water appears clear.

US Geological Survey

Comment 1: It would be helpful to include in the EA a description of how releases are made from Crystal. For example, the elevation of the release relative to the bottom of the reservoir. This would be useful in determining how sediment may move through the reservoir.

Response: A description of how releases are made from Crystal Reservoir is included with discussion of the Aspinall Unit under the Socioeconomic section.

Comment 2: There is no mention of the threshold at which dredging would cease. Which parameters will be used to determine whether cessation of dredging would occur? As we discussed, there are ways to determine if turbidity is associated with sediments or nutrients and the associated plant growth. Using secci disc and measurement of chlorophyl-a and nutrients (low level method) a determination could be made about what is effecting the trophic status of the reservoir. Once that is established, you could use secci-disc measurements to monitor the reservoir and determine the trophic status (once you establish the trophic status of the reservoir is not sediment or nutrient limited then you could make the assumption that amy changes in

turbidity are associated with sediments from dredging operations). The measurements could be used to determine when dredging should cease. A table of trophic conditions could be constructed that would allow for a determination of when turbidity became limiting. We could also look at ways to determine how to manage the dredging process. We could also look at data from other reservoirs to determine appropriate secci-disc depths.

Response: This comment was discussed in greater detail with USGS staff on September 6, 2001. USGS does not expect turbidity to be a major concern as a result of the dredging project. In consultation with CDOW, Reclamation was unable to identify at what level turbidity impacts below Crystal Dam. Reclamation will continue to work with CDOW to monitor water quality effects as a result of the dredging project.

Reclamation will consider collecting turbidity measurements in Crystal Reservoir and the Gunnison River below Crystal as part of its water quality monitoring program. Logistically, using the secci disks is problematic because of limited access.

Comment 3: Sample Sites: Is the site at Crystal South tail bay downstream from the reservoir? Why are you collecting data at the sites upstream from the Morrow Point footbridge? There is no explanation for the rational behind the sampling network. The site and the Morrow Point footbridge and downstream make sense.

Response: The Crystal South tail bay sampling site is located on the Gunnison River below Crystal Reservoir. The sampling network was developed to monitor water quality changes for this project and to collect baseline data for the proposed Morrow Point drawdown and trash rack cleaning project that will occur in late 2002 or 2003. In discussions with the CDOW, sample sites were selected so that Reclamation could monitor water quality changes throughout the Aspinall system and see how suspended sediments and other water quality parameters move through the system. The Cimarron River was also included in the sampling network because it is the largest contributor of sediment below Morrow Point and above Crystal. Water Quality data to date is attached for reference in the Appendices.

Comment 4: If there is an impact of the turbidity of the reservoir and downstream, consider dredging every other day to minimize the persistence of any effect.

Response: Dredging every other day is possible if turbidity becomes a problem. The frequency could be even longer if appropriate.

Comment 5: If you are concerned with monitoring effects of the dredging downstream from Crystal, a turbidimeter could be rented and installed at the Gunnison River below the Gunnison Tunnel (or immediately downstream from the Crystal Reservoir) to provide real-time data for use in decision making. Different secci-depth reading could be compared to turbidity data to determine if dredging should continue.

Response: The use of the turbidimeter may be appropriate for use in monitoring effects of the proposed Morrow Point drawdown and trash rack cleaning project.

Comment 6: Some size analysis (percent silts and clays) of suspended sediments would help determine how readily transported the sediments that escape the reservoir may be. This may have little utility for this round of dredging, but would provide useful information for future work.

Response: Reclamation will consider the potential of conducting limited size analysis as part of this project and future projects.

Consultation with other Agencies

Reclamation staff continues to informally coordinate and consult with the Fish and Wildlife Service to comply with the Fish and Wildlife Coordination Act and Endangered Species Act; the Army Corps of Engineers and Colorado Water Quality Control Commission to comply with the Clean Water Act; as well as the Western Area Power Administration, National Park Service, Bureau of Land Management, and the Colorado Division of Wildlife. A complete list of Agencies is included in the Distribution List.

Distribution List

Appendix A contains the mailing list for this Final EA. The list includes all individuals, agencies, and organizations to whom Reclamation sent the scoping document in January 2001. In addition, others who have specifically requested a copy of the Draft EA are included on the list.

References

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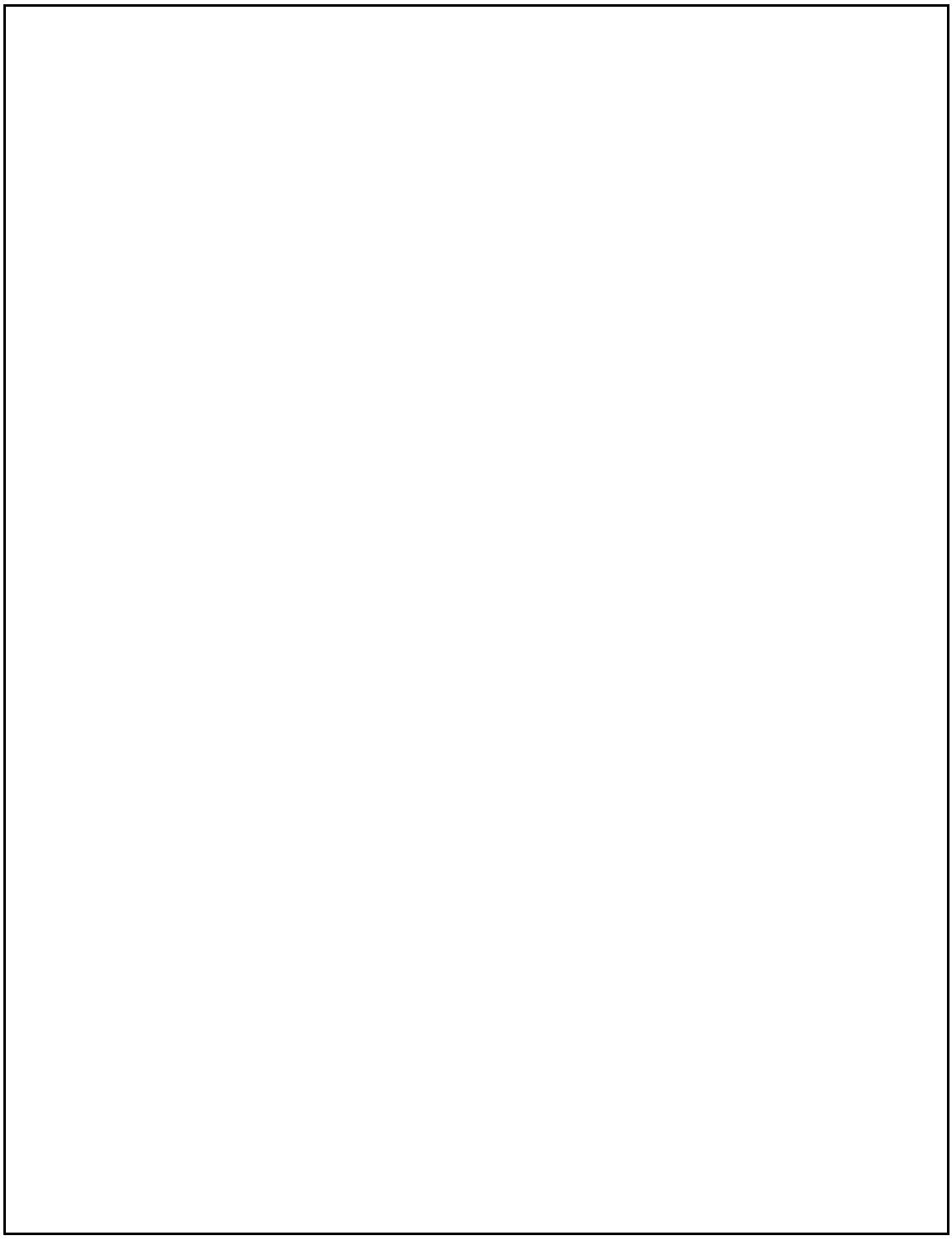
APPENDIX A
MORROW POINT DAM AND POWER PLANT
RIVER CHANNEL IMPROVEMENT DRAWING



APPENDIX B
DISTRIBUTION MAILING LIST

Cimarron Dredging Project
Distribution Mailing List

Mr. Larry Abbott
Colorado Department of Transportation
Grand Junction, CO

Mr. Jeffery Ackerman
Western Area Power Administration
Montrose, CO

Mr. Ray Alvarado
Colorado Water Conservation Board
Denver, CO

Mr. Brian Avery
National Weather Service
Grand Junction, CO

Mr. Cliff Barrett
CREDA
Stansbury Park, UT

Mr. Allan Belt
Bureau of Land Management
Montrose, CO

Mr. Bob Boulger
U.S. Geological Survey
Grand Junction, CO

Mr. Daniel Brauch
Colorado Division of Wildlife
Gunnison, CO

Mr. Dave Buchanan
Daily Sentinel
Grand Junction, CO

Mr. Gary Burton
Western Area Power Administration
Lakewood, CO

Mr. Marc Catlin
Uncompahgre Valley Water Users Association
Montrose, CO

Mr. Myron Chase
U.S. National Park Service
Montrose, CO

Mr. Ralph Clark III
Gunnison, CO

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Western Area Power Administration
Salt Lake City, UT

Ms. Kathy Crane
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Ms. Kathleen Curry
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Mr. Pat Daniel
Gunnison Country Times
Gunnison, CO

Mr. Bill Day
Hotchkiss, CO

Ms. Wilma Ervin
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Delta, CO

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Regional Solicitor's Office
U.S. Department of the Interior
Lakewood, CO

Mr. Duane Freeman
Delta County Emergency Management
Delta, CO

Mr. Jonathan Friedman
U.S. Geological Survey
Fort Collins, CO

Mr. Dave Gehlert
U.S. Department of Justice
Denver, CO

Mr. Steven Glazer
High Country Citizen's Alliance/Sierra Club
Crested Butte, CO

Mr. John Hayse

Mr. Sherman Hebein

Argonne National Laboratory
Argonne, IL

Mr. Duane Helton
Helton & Williamsen PC
Englewood, CO

Mr. Bill Andriss
Congressman Scott McInnis
Grand Junction, CO

Mr. Jim Hokit
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Mr. Brett Johnson
Colorado State University
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Ms. Melinda Kassen
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Ms. Margaret Matter
Western Area Power Administration
Golden, CO

Mr. Grady McNure
U.S. Army Corps of Engineers
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Mr. Bart Miller
Land and Water Fund of the Rockies
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Gordon Mueller
Bureau of Reclamation
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Mr. Rober Muth
U.S. Fish and Wildlife Service
Denver, CO

Mr. Pat Oglesby
Trout Unlimited
Grand Junction, CO

Mr. Chuck Pettee
National Park Service
Fort Collins, CO

Mr. Al Pfister
U.S. Fish and Wildlife Service

Colorado Division of Wildlife
Montrose, CO

Mr. Shane Henry
Senator Wayne Allard
Grand Junction, CO

Mr. Hank Holtze
Gunnison River Expeditions
Montrose, CO

Mr. Terry Ireland
U.S. Fish and Wildlife Service
Grand Junction, CO

Mr. Dave Kanzer
Colorado River Water Conservation District
Glenwood Springs, CO

Ms. Dianna Leinberger
Club 20
Grand Junction, CO

Mr. Pat Martinez
Colorado Division of Wildlife
Grand Junction, CO

Mr. Chuck McCada
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Grand Junction, CO

Mr. Craig Meis
KNFS Environmental Services
Grand Junction, CO

Mr. Jim Miller
Colorado Department of Agriculture
Denver, CO

Dennis Murphy
Bureau of Land Management
Montrose, CO

Mr. Mike Myers
U.S. National Weather Service
Grand Junction, CO

Mr. Matt Owens
Matt Owen's Fly Company
Cedaredge, CO

Mr. Frank Pfeifer
U.S. Fish and Wildlife Service
Grand Junction, CO

Ms. Andrea Ray
U.S. National Oceanic & Atmospheric Administration

Grand Junction, CO

Boulder, CO

Mr. Ramon Reed
Gunnison Basin Power
Gunnison, CO

Ms. George Rossman
Senator Ben Nighthorse Campbell
Grand Junction, CO

Mr. Richard Sales
City of Delta
Delta, CO

Mr. Wayne Schieldt
Colorado Division of Water Resources
Montrose, CO

Mr. Mark Schumacher
Upper Gunnison River Water Conservancy District
Gunnison, CO

Mr. Randy Seaholm
Colorado Water Conservation Board
Denver, CO

Mr. John Shields
Wyoming State Engineers Office
Cheyenne, WY

Mr. George Smith
U.S. Fish and Wildlife Service
Denver, CO

Mr. Roy Smith
Bureau of Land Management
Lakewood, CO

Mr. Ken Stahlnecker
U.S. National Park Service
Gunnison, CO

Mr. Jack Stanford
Flathead Biological Station
Polson, MT

Mr. Dennis Steckel
Upper Gunnison River Water Conservancy District
Gunnison, CO

Mr. Sheridan Steele
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Mr. Richard Stodt
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Denver, CO

Mr. Gregg Strong
Redlands Water and Power Company
Grand Junction, CO

Mr. Everett Sunderland
Upper Colorado River Commission
Salt Lake City, UT

Mr. Matt Sura
Western Colorado Congress
Grand Junction, CO

Mr. Ray Tenney
Colorado River Water Conservation District
Glenwood Springs, CO

Mr. Greg Trainor
City of Grand Junction
Grand Junction, CO

Mr. John Trammel
Trout Unlimited
Grand Junction, CO

Mr. Jim Ventrello
Delta County Commissioners
Delta, CO

Mr. Paul Von Guerard
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Grand Junction, CO

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Delta County Independent
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Members Ballantyne Loper and Wetlaufer
Western Colorado Congress
Montrose, CO

Delta County Commissioners
Delta, CO

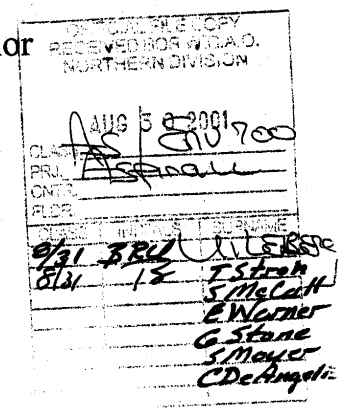
Mr. William E. Davies
EcoPlan Associates, Inc.
Mesa, AZ

Ms. Leslie James
Colorado River Energy Distributors Association
Tempe, Arizona

APPENDIX C
COMMENT LETTERS

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
764 Horizon Drive, Building B
Grand Junction, Colorado 81506-3946



IN REPLY REFER TO:
ES/CO:BR
MS 65412 GJ

August 29, 2001

Memorandum

To: Area Manager, Bureau of Reclamation, Grand Junction, Colorado

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

Subject: Morrow Point Reservoir Gravel Removal Project Draft Environmental Assessment Comments

On May 4, 2001, the Service provided comments on the proposed action in a species list request letter. Our concerns focused on timing and amount of water flows to the endangered Colorado River fishes and impacts to potential trout spawning on the gravel bar proposed for removal. The Bureau has committed in the DEA to maintain flows at or above 300 cfs at Redlands Dam during construction, as called for under contract No. 95-07-40-R1760, and to conduct the activity in October or November as recommended in our May 4th letter, thus addressing our water flow concerns. Additionally, information on trout spawning indicates that there is no trout spawning on or near the gravel bar proposed to be removed. Consequently, our concern about trout spawning impacts and the amount of gravel removed is alleviated. No wetland areas will be impacted by removal work or stockpiling of the gravel so we have no concern about wetland resources nor the project in general.

cc: CDOW, Montrose (Attn: Sherman Hebein)
FWS/ES, Lakewood

TIreland:MorrowPtDEAMem.wpd:082901

N1621

August 29, 2001

Carol DeAngelis
U.S. Bureau of Reclamation
2764 Compass Drive
Grand Junction, Colorado 81506

Dear Carol:

Following are comments from the National Park Service regarding the Draft Environmental Assessment for the Cimarron dredging project.

We offer the following:

GENERAL COMMENTS:

Page 3, paragraph 3: states "The Black Canyon of the Gunnison National Park (formerly National Monument until 1999) was created by Presidential Proclamation No. 2033 (47 Stat 2558) …". To be more accurate, the National Monument was established by Presidential Proclamation, the National Park was designated by an act of Congress through enactment of P.L. 106-76 in October of 1999.

Page 3, paragraph 4: The area administered by the Bureau of Land Management below Black Canyon of the Gunnison National Park was designated as the "Gunnison Gorge National Conservation Area" through the same act that designated Black Canyon as a National Park.

Page 3, paragraph 8: states that concerns focused around the water quality issues "below" Crystal Reservoir. Were there no concerns about water quality "within Crystal Reservoir? If not, why?

Page 4, paragraph 4, Land and Facility Resources: Will the road be closed to the public during the entire two-month dredging process, or just during the 6 hours per day that dredging activities are taking place?

Page 5, paragraph 2, last sentence: should read "…which represents about $98,539.00 per <u>year</u> in power revenues."

Page 5, paragraph 4: Where is the "off-site" storage area? Do the impacts associated with the off-site storage area need to be evaluated.

Page 6, statement 3: Should you be minimizing negative effects to trout resources "within" as well as below Crystal Reservoir.

Page 9, paragraph 3, sentence 2: should read "…in conjunction with the construction of the Aspinall Unit."

Page 9, paragraph 5, sentence 1: should read "…below the Black Canyon of the Gunnison National Park…"

Page 9, paragraph 7: Has the effect on private boater access to Crystal Reservoir post-dredging been evaluated? If not, what are the perceived impacts/benefits?

Page 10, paragraph 6: The Colorado Division of Wildlife does not manage The Gunnison River below Crystal Reservoir. The National Park Service manages the river as part of Curecanti National Recreation Area and Black Canyon of the Gunnison National Park. The Colorado Division of Wildlife does have fisheries management responsibility on the river.

Page 10, paragraph 6, sentence 4: should read "…below the Black Canyon of the Gunnison National Park."

Page 12, paragraph 6: While the Colorado River cutthroat trout, bluehead sucker, and flannelmouth sucker are not federally listed species, they are State Special Concern Species. As such, the National Park Service must manage them in a manner similar to its treatment of federally listed species. Therefore, potential impacts to these species must be evaluated.

Page 13, paragraph 1: states "…flushing flows are not being considered at this time…". Is it conceivable that flushing flows will be necessary? If so, what is the contingency in case they are needed?

Page 13: The water quality monitoring design on Crystal Reservoir before and during the dredging is not specific to any depth. At what depth is the sampling taking place? Surface sampling will almost always yield adequate dissolved oxygen values. Water quality profiles within the reservoir may show much different values.

Page 14, paragraph 2: What is considered to be "significantly" turbid? This needs to be quantified and based on turbidity levels where impacts to aquatic life may occur.

Page 15, paragraph 2: The proposed project is not within the Curecanti Archeological District. The primary focus of the Archeological District is in the vicinity of Blue Mesa Reservoir.

Page 16, paragraph 1: Affect should read affected.

Page 18, Paragraph 3: Isn't the primary effect of the proposed action more accurately to restore the channel of the Gunnison River to its 1965 elevation?

Page 19, paragraph 1: To reiterate an earlier point, the level of unacceptable turbidity needs to be quantified.

We appreciate the opportunity to comment on the environmental assessment. If you have additional questions concerning this issue, please contact me at (970) 641-2337 ext. 220.

Sincerely,

Sheridan Steele
Superintendent

From: "Paul Vonguerard" <pbvongue@usgs.gov>
To: <tstroh@uc.usbr.gov>
Date: 8/31/01 3:24PM
Subject: Draft EA

Terry:

listed below are my comments on the Draft EA for the Morrow Point Cimarron Dredging Project.

1. It would be useful to include in the EA a description of how releases are made from Crystal. For example the elevation of the release relative to the bottom of the reservoir. This would be useful in determining how sediment may move through the reservoir.

2. There is no mention of the threshold at which dredging would cease. Which parameters will be used to determine whether cessation of dredging would occur? As we discussed, there are ways to determine if turbidity is associated with sediments or nutrients and the associated plant growth. Using a secci disc and measurements of chlorophyll-a and nutrients (low level method) a determination could be made about what is effecting the trophic status of the reservoir. Once that is established, you could use secci-disc measurements to monitor the reservoir and determine the trophic status (once you establish that the trophic status of the reservoir is not sediment or nutrient limited then you could make the assumption that any changes in turbidity are associated with sediments from the dredging operation.) The measurements could be used to determine when dredging should cease. A table of trophic conditions could be constructed that would allow for a determination of when turbidity became limiting. That may be a way to determine how to manage the dredging process. We could also look at data from other reservoirs to determine appropriate secci-disc depths.

3. Sampling sites:
Is the site at Crystal South tail bay downstream from the reservoir? Why are you collecting data at the sites upstream from the Morrow point foot bridge? There is no explanation for the rational behind the sampling network. the site and the Morrow point foot bridge and downstream make sense.

4. If there is an impact of the turbidity of the reservoir and downstream consider dredging every other day to minimize the persistence of any effect.

5. If you are concerned with monitoring effects of the dredging downstream

from Crystal a turbidimeter could be rented and installed at the Gunnison River below the Gunnison Tunnel (or immediately downstream from the Crystal Reservoir) to provide real-time data for use in decision making. Different secci-disc depths could be compared to turbidity to provide a frame of reference to use the turbidity data to determine if dredging should continue.

6. Some size analysis (percent silts and clays) of suspended sediments would help to determine how readily transported the sediments that escape the reservoir may be. This may have little utility for this round of dredging, but would provide useful information for future work.

Paul von Guerard
Western Slope Subdistrict Chief
Ph 970-245-5257 ext 14
FAX 970-245-1026
email pbvongue@usgs.gov

CC: **"Robert W Boulger" <rboulger@usgs.gov>**

Grand Valley Anglers
P. O. Box 3109
Grand Junction, CO 81504

August 30, 2001

Mr. Terry Stroh
Bureau of Reclamation
Western Colorado Area Office
2764 Compass Drive
Grand Junction, CO 81506

Dear Mr. Stroh

This letter is in response to the Draft Environmental Assessment of the Morrow Point/Cimarron Dredging Project.

Grand Valley Anglers, Chapter of Trout Unlimited, is concerned about possible impacts to the Gunnison River below Crystal Reservoir with respect to your proposed project.

October is a sensitive time for spawning brown trout. Water quality is important for trout spawning and recruitment. Suspended sediments could be moved down the river affecting spawning areas.

In 1999 the trash racks in Crystal Reservoir required cleaning. When the level of the reservoir was lowered, large silt deltas were exposed on the upper end of the reservoir. During releases from Morrow Point Reservoir, the flows cut through the deltas taking the material on through the reservoir depositing the materials in the river throughout the Gorge. This lasted for several weeks. Since we haven't had a high spring flow for the past two years, there is still evidence of the fine material.

When water quality is lowered it has a direct negative impact on the river, and the rafting and fishing industries are affected due to poor fishing conditions and , of course, the overall aesthetics are impacted.

Another concern is that fine silty material is habitat for the whirling disease host, the tubifex worm. Whirling disease has devastated the rainbow trout population in the Gorge and by increasing sediment the problem may be increased.

The report notes that Reclamation will visually monitor the water quality in Crystal Reservoir and if the lower end becomes significantly turbid, dredging activities would be

stopped. Often, including the past few weeks when the Cimarron River was running high due to heavy rains in the Cimarron drainage, the reservoir was clear but the releases out of Crystal were extremely turbid. The monitoring must be done in the river below Crystal Dam at the East Portal. The report doesn't identify the agency that would make that decision. The Colorado Division of Wildlife should be consulted for their evaluation.

We ask that you give consideration to these concerns.

Sincerely,

Pat Oglesby
President, Grand Valley Anglers

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
UNCOMPAHGRE FIELD OFFICE
2505 South Townsend
Montrose, CO 81401

IN REPLY REFER TO:
2800 (CO-030)
7200

Terry Stroh
USBR
Upper Colorado Region
2764 Compass Drive, Suite 106
Grand junction, CO 81506-8785

Dear Terry:

Thanks for providing us the opportunity to review and comment on the Draft Environmental Assessment - Morrow Point Cimarron Dredging Project. After reviewing the document we feel that most of our concerns are covered but in a very general manner. We would like to re-emphasize our earlier request that BR make a sincere effort to provide timely and detailed notification to concerned agencies, interested parties, and publics, prior to and during the proposed dredging activity. This and other concerns are detailed in our previous correspondence to you regarding this project, which we would like to request be made part of our comments on the draft EA. Additionally, we have a few proposed word changes to the document to more accurately reflect the present status of our management area downstream of the proposed project (see below). If you have any questions, please contact either myself (970-240-5342) or Karen Tucker (970-240-5309).

Dennis M. Murphy

Sincerely,

BLM-Hydrologist

Specific Comments:

Page 3 ~~Gunnison Gorge Special Recreation Area~~ Gunnison Gorge National Conservation Area and Wilderness

The BLM manages the Gunnison Gorge National Conservation Area (NCA) and Wilderness located immediately downstream of the Black Canyon of the Gunnison National Park. The NCA area includes an additional 24 miles of the Gunnison River from the Park's western boundary down to the Town of Austin.

Page 4 Recreation Resources

Rafting, floatfishing, walk-wade fishing, hiking, sightseeing.....

Page 9

<u>Recreation Resources</u>

..... An additional 26 miles of the Gunnison River .....downstream of the National Park is managed by the BLM. The river flows through the BLM"s 57,700 acre Gunnison Gorge National Conservation Area and Wilderness. BLM manages the NCA and Wilderness to permanently protect and conserve its outstanding scenic, geologic, wildlife, and wilderness resources and to provide a diverse range of recreational opportunities including wilderness whitewater boating and camping, floatfishing, and walk-wade fishing, hiking, and sightseeing.

Page 17

Commercial Guiding Services

ADD - The majority of commercial float and walk-wade fishing use on the river occurs within the BLM's Gunnison Gorge NCA and Wilderness. These activities are popular throughout the summer (May - early October) with the highest annual use of the river by both commercial and

private float and walk-wade fishers occurring during early June (stonefly hatch period). Floatfishing by commercials is also extremely popular in late July, August and September.

Sept 1-2001

Carol de Angelis,

We are for dredging Project below Marrow Paint Dam.

Don't stop there move up to Gould Res, Crawford Res, and Paonia Res.

Sincerely

Makaria

4325 A60 Dr

Crawford, Co. 81415

970-921-3303

OFFICIAL FILE COPY
RECEIVED BOR W.C.A.O.
NORTHERN DIVISION

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PRJ.
CNTR.
FLDR.

CLASS	INITIALS	SURNAME

APPENDIX D
WATER QUALITY DATA

Sample Site & Date	Sample Date	Sample Depth	Sample Type	Ambient Air Temp.	Water Temp.	pH	Conductivity	TDS	TSS	Calcium	Magnesium	Total Hardness	Dissolved Oxygen
Blue Mesa Intake	4/16/01	3	PVC Bailer	3	6	6.36	206	136	2.9	32	5	100	6.7
Blue Mesa Intake	5/20/01	3	PVC Bailer	20	10	7.14	189	125	5	30	4	91	8.5
Blue Mesa Intake	6/21/01	3	PVC Bailer	14	14	7.67	174	114	5.3	21	4	70	7
Blue Mesa Intake	7/7/01	3	PVC Bailer	14	17	7.3	165	110	0.5	17	4	58	6.5
Blue Mesa Intake	8/14/01	3	PVC Bailer	15	20	7.44	173	114	2.4	22	4	71	4.9
Blue Mesa Jet	4/16/01	3	PVC Bailer	9	5	6.61	208	137	2.7	29	5	93	9.8
Blue Mesa Jet	5/20/01	3	PVC Bailer	22	9	7.15	207	137	4	31	4	94	8.9
Blue Mesa Jet	6/21/01	3	PVC Bailer	22	10	7.41	190	125	3.3	30	4	93	9.4
Blue Mesa Jet	7/7/01	3	PVC Bailer	16	9	7.13	180	121	1.8	19	4	64	9.6
Blue Mesa Jet	8/14/01	3	PVC Bailer	16	10	7.15	175	116	3	22	4	71	7.6
Morrow Point Intake	4/16/01	3	PVC Bailer	9	5	6.59	209	138	2.4	32	5	100	9
Morrow Point Intake	5/20/01	3	PVC Bailer	22	14	7.62	175	115	6.2	27	3	79	8.8
Morrow Point Intake	6/21/01	3	PVC Bailer	28	14	7.67	148	148	2	18	3	57	8.4
Morrow Point Intake	7/7/01	3	PVC Bailer	20	18	7.47	151	151	0.2	13	4	47	7.4
Morrow Point Intake	8/14/01	3	PVC Bailer	17	18	7.81	163	108	20	20	4	66	4.7
Morrow Point Footbridge	4/16/01	3	PVC Bailer	7	5	7.04	207	137	2.2	27	5	88	10.5
Morrow Point Footbridge	5/20/01	3	PVC Bailer	21	9	7.31	186	123	4.6	33	3	94	10.5

Sample Site & Date	Sample Date	Sample Depth	Sample Type	Ambient Air Temp.	Water Temp.	pH	Conductivity	TDS	TSS	Calcium	Magnesium	Total Hardness	Dissolved Oxygen

Morrow Point Footbridge	6/21/01	3	PVC Bailer	29	10	7.44	169	112	3	23	4	75	9.8
Morrow Point Footbridge	7/7/01	3	PVC Bailer	22	11	7.22	177	118	0.2	18	4	61	8
Morrow Point Footbridge	8/14/01	3	PVC Bailer	17	17	7.42	174	115	7.4	23	4	73	7.4
Cimmaron River	4/16/01	1	PVC Bailer	7	5	7.56	624	418	16.6	44	23	203	9.8
Cimmaron River	5/20/01	1	PVC Bailer	21	13	7.69	230	152	63.3	24	5	81	8.6
Cimmaron River	6/21/01	2	PVC Bailer	29	15	8.38	360	241	16	29	12	121	8.4
Cimmaron River	7/7/01	2	PVC Bailer	22	15	8.07	358	358	4.8	33	7	111	12.2
Cimmaron River	8/14/01	2	PVC Bailer	17	17	8.06	638	444	234	43	43	226	9.2
Crystal Intake	4/16/01	3	PVC Bailer	10	8	7.09	228	150	5.7	29	6	976	6.8
Crystal Intake	5/20/01	3	PVC Bailer	18	12	7.8	196	129	8.3	35	4	103	8.8
Crystal Intake	6/21/01	3	PVC Bailer	29	13	7.64	171	113	2	22	4	73	9.4
Crystal Intake	7/7/01	3	PVC Bailer	27	18	7.68	184	123	0.4	15	4	51	6.5
Crystal Intake	8/14/01	3	PVC Bailer	18	17	8.04	198	131	4.2	24	5	80	6.5
Crystal Tailbay	4/16/01	3	PVC Bailer	13	8	7.18	228	150	5.2	28	6	94	7.4
Crystal Tailbay	5/20/01	3	PVC Bailer	19	9	7.46	190	190	6.3	30	4	91	11.5
Crystal Tailbay	6/21/01	3	PVC Bailer	29	10	7.47	182	120	6.6	21	4	71	9.6
Crystal Tailbay	7/7/01	3	PVC Bailer	27	12	7.34	197	132	1.2	18	4	61	9.2
Crystal Tailbay	8/14/01	3	PVC Bailer	20	11	7.66	191	126	10.6	25	5	83	7.7