Draft Environmental Assessment
for

Providing Fish Screening in the Redlands Power Canal

Prepared for:

Upper Colorado River
Endangered Fish Recovery Program
Denver, Colorado

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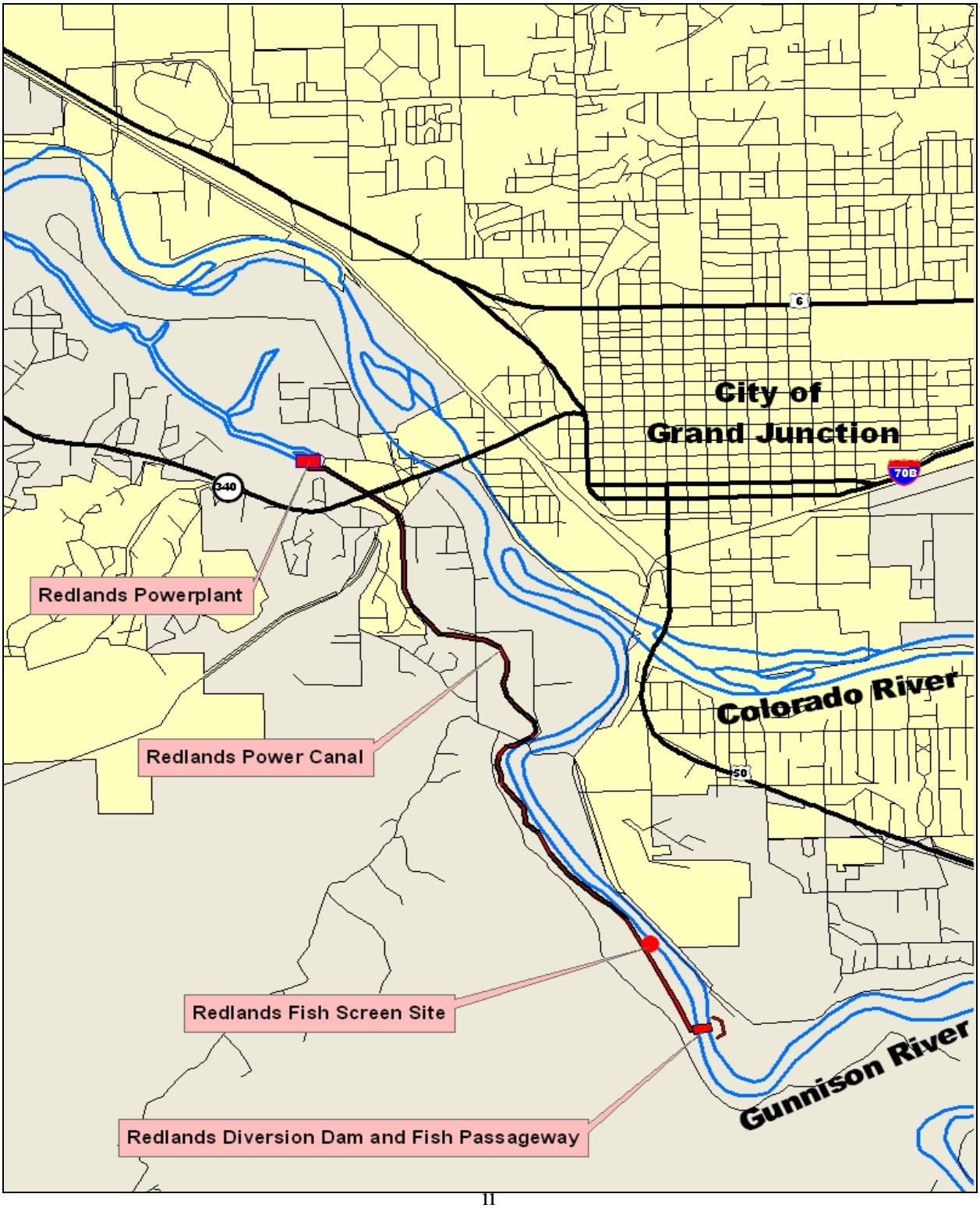
City of
Grand Junction
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CHAPTER 1 – INTRODUCTION

PROPOSED ACTION

The Upper Colorado River Endangered Fish Recovery Program (Recovery Program) is proposing to construct a fish screen in the Redlands Power Canal southwest of the city of Grand Junction, in Mesa County, Colorado (Frontispiece Map). The Redlands Power Canal transports water diverted from the Gunnison River by the Redlands Diversion Dam. The fish screen would return fish that enter the Redlands Power Canal to the Gunnison River downstream of the Redlands Diversion Dam.

NEED FOR AND PURPOSE OF ACTION

This draft environmental assessment (EA) evaluates the effects on the human environment from constructing and operating a fish screen in the Redlands Power Canal. 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.

UPPER COLORADO RIVER ENDANGERED FISHES RECOVERY PROGRAM

In 1988, the Governors of Colorado, Utah and Wyoming; the Secretary of the Interior; and the Administrator of Western Area Power Administration entered into a cooperative agreement to initiate the Upper Colorado River Endangered Fish Recovery Program. The Recovery Program is an interagency partnership created to recover the endangered Colorado pikeminnow (*Ptychocheilus lucius*), razorback sucker (*Xyrauchen texanus*), humpback chub (*Gila cypha)* and bonytail (*Gila elegans*).

Recovery Program elements include:

- Habitat management including identifying and acquiring instream flows, changing operations of Federal dams, and operating other reservoirs in a coordinated manner to benefit endangered fish.
- Habitat development including restoring floodplain/wetland habitats, constructing fish passageways around dams and other barriers in the river, and constructing fish screens in major canal diversions.
- Native fish propagation and genetic management involving establishing facilities to hold

adult brood stock to prevent extinction of these rare fish and maintain their genetic resources; develop growout ponds; conduct research to improve survival of endangered fish raised in captivity and stocked in the wild; and support appropriate stocking and reintroduction efforts.

- Nonnative species and sportfishing entailing managing detrimental nonnative fish species in habitat considered "critical" to endangered fish. This also involves educating and distributing information to anglers to reduce accidental capture of endangered fish.
- Research, monitoring, and data management provides information about what these fish need to survive, grow, and reproduce in the wild. Efforts include compiling data on the number, sizes, and locations of endangered fish; monitoring endangered fish population trends; and making river flow recommendations.

Need: The Recovery Program has identified a need to construct and operate a fish screen in the Redlands Power Canal to prevent entrainment of adult and sub adult Colorado pikeminnow and razorback sucker.

Purpose: The purpose of the proposed action is to implement Recovery Program elements to minimize incidental take of endangered fishes, enhance critical endangered fish habitat and assist in recovery of the Colorado pikeminnow and razorback sucker.

● Actions taken should be cost effective, timely, and complement related actions to help restore native fish populations and protect existing and planned rights and uses affected by the project. Related Recovery Program actions include providing fish passage at diversion dams and structures, stocking endangered fish, controlling non-native fish species, acquiring and restoring floodplain habitat, and protecting instream flows.

● Potentially affected uses of Gunnison River water include: providing irrigation water to residents of the Redlands Community, hydroelectric power generation at the Redlands Power Plant, and the Redlands fish passageway.

● The choice among alternatives should ensure costs to the Recovery Program are as low as possible while considering benefits to the endangered fishes.

BACKGROUND INFORMATION

Endangered Fishes—Many studies have been completed on Colorado River endangered fishes (Colorado pikeminnow, razorback sucker, bonytail and humpback chub), their habitats, their behavior, and factors that led to the decline and listing of these species under the Endangered Species Act (summarized in the Final EA for Fish Passage at the GVIC Diversion Dam, Appendix A, (Reclamation, 1997). These studies have increased the understanding of

actions needed to recover the fish (establish self-sustaining populations) throughout the Upper Colorado River Basin. Critical habitat (critical to the survival of a listed species) has been designated for the Colorado pikeminnow and razorback sucker, and includes the 100-year flood plain of Gunnison River from its confluence with Colorado River upstream to the Gunnison River's confluence with the Uncompahgre River.

Colorado pikeminnow and razorback sucker have been stocked in the Gunnison River upstream of the Redlands Diversion Dam and have been documented using the Redlands Fish Passageway (Burdick 2002). Both species have also been stocked upstream and downstream of the Gunnison River's confluence with the Colorado River (River Mile 170.3) (Burdick, 2002b). Both fish species are extremely rare throughout the Upper Colorado River Basin. To exclude fish from major canal diversions, a fish screen was constructed in 2002 in the Grand Valley Irrigation Canal, a diversion from the Colorado River at River Mile 185.1. A fish screen will also be constructed 2004 in the Government Highline Canal, which is a diversion from the Colorado River at River Mile 193.6. Additional information on endangered Colorado River fishes is included in the biological assessment.

Habitat Availability Upstream—One factor that has led to the decline of native and endangered fish is loss of access to their historic habitats. In 1996, fish passage was restored past the Redlands Diversion Dam to allow endangered fish access to critical habitat in the Gunnison River to its confluence with the Uncompahgre River and restored connection with Colorado River endangered fish populations. This fish passageway is operated by the Service as a selective passage and prevents non-native fish movements upstream of the Redlands Diversion Dam.

PUBLIC SCOPING

A public scoping letter was mailed to various agencies and adjoining landowners in April 2003. Reclamation requested assistance in identifying issues and concerns associated with the proposed projects. Reclamation requested comments by May 19, 2003. No comments were received.

Fish screen alternatives evaluated in this EA include the Proposed Action and No action Alternatives, and are discussed in Chapter 2. Each issue and concern described below is discussed in Chapter 3. More information on scoping activities is also included in Chapter 4.

Water Resources

Diversion Dam Operations and Water Rights—The Redlands Diversion Dam is used year-round to divert water for irrigation and to generate hydroelectric power. Operation of the fish screen should not interfere with operations of the dam or affect the ability to divert water for irrigation and hydroelectric power generation.

Water Quality—During construction of the fish screen, water quality downstream of the fish return pipeline could be temporarily affected.

Land and Facilities Resources

Protecting Existing Structures—Water is diverted year-round from the Gunnison River via the Redlands Diversion Dam in to the Redlands Power Canal. An improperly functioning screen (screen that restricts canal flow) could damage the canal and negatively affect Redland Water and Power Company's operations.

Access—Before construction of the fish screen, Reclamation would coordinate activities as needed with the Redlands Water and Power Company to safely access the site and use their land and facilities. Reclamation would request temporary easements for construction. After construction, Redlands Water and Power Company would assume ownership and operate the fish screen with funding provided by the Recovery Program.

Unique Geographic Features

Floodplain and Wetlands Protections—The Gunnison River provides highly valued riparian habitat and floodplain functions that need to be considered when constructing the fish screen.

Fish and Wildlife Resources

Effects on Endangered Colorado River Fishes—Federal actions that affect (either adverse or beneficial) federally threatened or endangered species require consultation with the U.S. Fish and Wildlife Service under Section 7 of the Endangered Species Act of 1973. The Service concludes consultation with written concurrence with the Biological Assessment or issuance of a Biological Opinion. Harm, injury or death to a listed species or their designated critical habitat as a result of the proposed action would constitute a "takings" and require an "incidental take statement" to comply with the Endangered Species Act.

Cultural Resources

Historic Resource Preservation—The Redlands Diversion Dam, canal system, and power plant are included in the Redlands Dam Complex (5ME764) and is considered eligible for the National Register of Historic Places by the Colorado Historical Society. Federal agencies are responsible for ensuring that they take into account the effects of their actions on significant cultural resources, and comply with the National Historic Preservation Act, 36 CFR Part 800, and other historic preservation requirements.

Social and Economic Resources

Hydropower—The Redlands Diversion Dam diverts winter flows from the Gunnison River for hydropower generation at the Redlands Power Plant. Operation of the fish screen should not interefere with the ability to divert and transport water to the Redlands Power Plant. However, during construction diversion for hydropower generation would be temporarily interrupted.

CHAPTER 2—PROPOSED ACTION AND ALTERNATIVES

ALTERNATIVES

Alternatives evaluated in this environmental assessment include the No Action and Proposed Action Alternatives.

No Action Alternative: Under this alternative, the Recovery Program would not construct or provide funding for operation and maintenance of a fish screen in the Redlands Power Canal. Adult and sub adult Colorado pikeminnow and razorback sucker could continue to become entrained in the Redlands Power Canal and be harmed, harassed or killed (take) by continued Redlands Water and Power Company (RWPC) operations.

Proposed Action: Under the Proposed Action, the Recovery Program would construct a fish screen in the Redlands Power Canal to prevent canal entrainment of adult and sub adult Colorado pikeminnow and razorback sucker. Reclamation would design and construct the fish screen and the Recovery Program would provide fish screen operation and maintenance funding to Redlands Water and Power Company. RWPC would assume ownership of the fish screen.

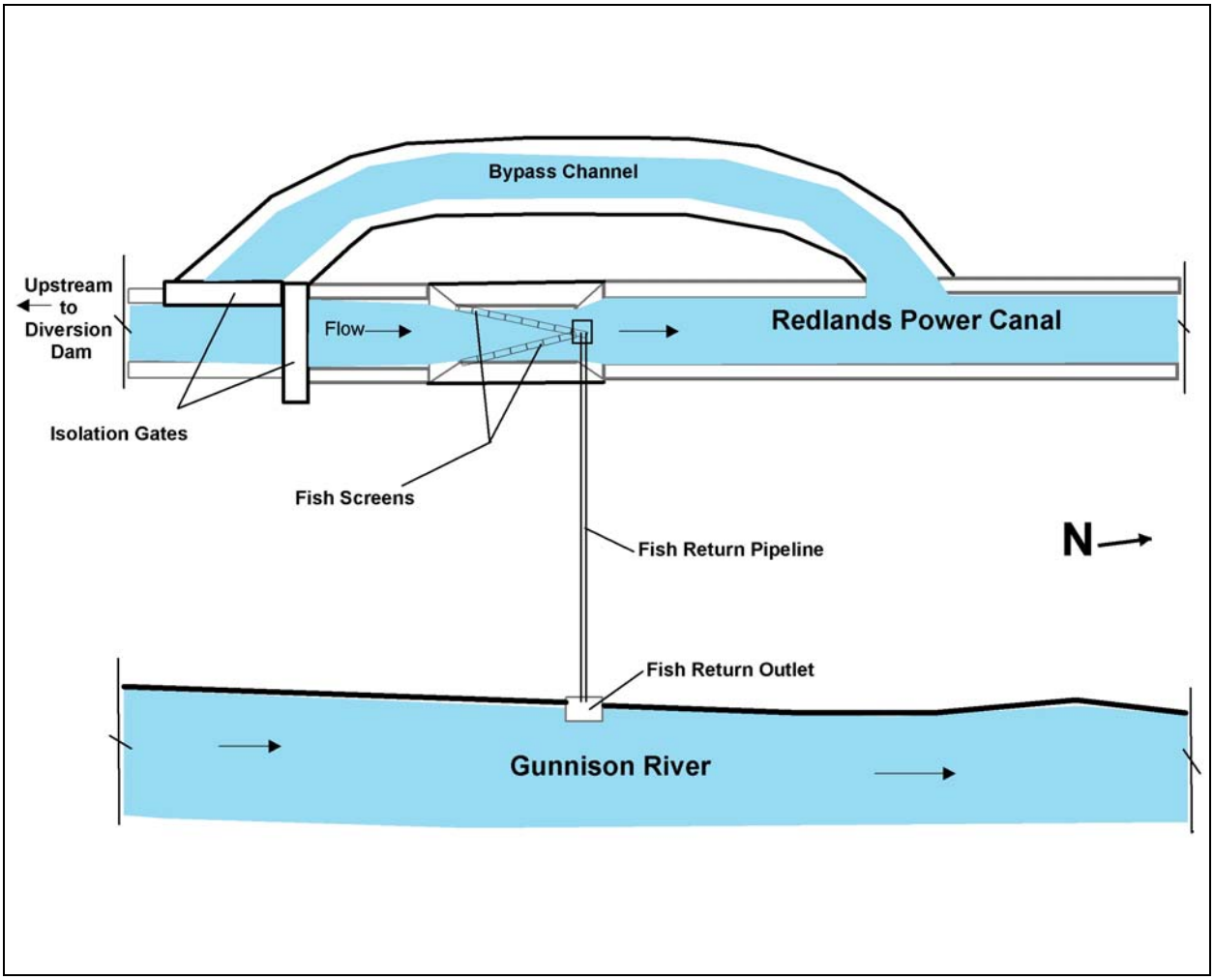
RWPC would also assume ownership of the Redlands Fish Passageway. The Service would continue to operate the fish passageway and RWPC would perform maintenance activities with funding provided by the Recovery Program.

Fish Screen Design—the fish screen was designed based on the biology and characteristics of the Colorado pikeminnow and razorback sucker. Figure 1 provides a general site plan for the fish screen structure, which includes a fish screen, a bypass channel, and a fish return pipeline. The fish screen would be a "V-type" configuration with each leg of the screen being 160 feet long. The screen is designed for a total diversion of 890 cfs, returning 40 cfs for the fish return pipeline, for a total screened flow of 850 cfs. The mesh size used for the fish screen would be 3/32-inch. The fish pipeline would be constructed using 36-inch PVC pipe with a total length of approximately 460 feet. Maximum screen pipeline flow would be 5% of the diversion or 45 cfs. Upstream and downstream bulkheads would be used for isolation during screen fowling, icing, and other times when the fish screen is bypassed. The canal bypass channel would be constructed to bypass 850 cfs around the fish screen.

Construction—The fish screen would be completed under Reclamation construction contracts. RWPC would continue to participate in the design process to ensure that the fish screen facilities would not conflict with the RWPC operations. Temporary construction

easements and/or permits would also be acquired from all affected landowners before construction. Reclamation would negotiate protective measures to reduce impacts to private property, rights-of-ways and facilities. Following construction, any damaged area would be restored, as near as practicable, to its original condition.

Figure 1-Fish Screen Conceptual Drawing



Before construction, Reclamation and the contractor would obtain any necessary approvals required by the Clean Water Act. Reclamation would request authorization under Regional General Permit N0. 57, Project Benefiting Colorado River Endangered Fishes, to construct a temporary cofferdam to dewater the fish return pipeline outlet in the Gunnison River. If discharging water from dewatering the cofferdam area were needed, the contactor would obtain a Section 402 permit. In river construction would be scheduled during low water conditions during the winter months.

Construction would begin after October 15th when irrigation diversions are no longer needed. The Redlands Power Canal would be dewatered to construct the canal bypass channel and install the upstream and downstream bulkhead isolation structures. Once the bypass channel is completed, RWPC could divert river flows to the Redlands Power Plant to generated hydroelectric power while screen construction continued. It is anticipated that the Redlands Power Canal would be dewatered from October 15th to April 15th. Excavated material to construct the bypass channel (about 50,000 cubic yards) would be wasted on-site in upland areas identified by RWPC on RWPC's property.

Construction access would be from the existing dam and canal access road. No major road improvements are anticipated.

CHAPTER 3 – AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter discusses resources that may be affected by actions taken to provide fish screening in the Redlands Power Canal. During preparation of this draft environmental assessment, information on issues and concerns was received from affected water users, resource agencies, private interests, recreational interest groups and citizens, and other interested parties (see Chapter 4, Consultation and Coordination, for further details).

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

GENERAL

The project is located in Mesa County, Colorado along the Gunnison River. Mesa County has a population of about 110,000. Grand Junction, the largest city in the area, was founded in 1881. Construction of the first irrigation project began in 1882 with the construction of the Pacific Slope Ditch to supply Grand Junction with water.

The Redlands Diversion Dam is a privately owned and operated structure located on the Gunnison River approximately 2.3 miles upstream from the confluence with the Colorado River (frontispiece map). The Redlands Water and Power Company constructed the diversion dam in 1918 and has since modified and upgraded it. The concrete dam is 8.5 feet high and consists of a 312-foot-long spillway with a 6-foot-wide crest and two 10-foot-wide by 6-foot-high sluice gates. A flow of 850 cubic feet per second (cfs) is diverted through four 14-foot-wide headgates on the west side into the Redlands Power Canal. This flow is used for irrigation water and hydroelectric power generation. In 1983, the Federal Energy Regulatory Commission (FERC) exempted the Redlands Water and Power Company from licensing under FERC regulations. This exemption required that fish passage be allowed around the dam.

In 1996, the Recovery Program constructed a selective fish passageway at the Redlands Diversion Dam to provide endangered fish access upstream to additional critical habitat (Figure 2). The Service has operated the fish passageway seasonally since 1996. Additional information about the Redlands Fish Passageway can be found in the Service's 1996-2000 evaluation report (Burdick, 2001) and the fish screen's biological assessment (Reclamation, 2003).

Figure 2-Redlands Diversion Dam and Fish Passageway

Although agriculture remains important in the Grand Valley today, light manufacturing and service industries also influence the local economy. Tourism is also a significant source of economic activity for the area.

WATER RESOURCES

Water Rights and Use

Issue: The proposed action must not interfere with the Redlands Water and Power Companies operations.

Existing Conditions: The Redlands Diversion Dam and Redlands Power Plant are operated year round to provide water for irrigation and hydroelectric power generation. The Redlands Diversion Dam diverts about 750 cfs into the Redlands Power Canal year-round. A junior water right for an additional 100 cfs is rarely available for use. About 70 cfs of irrigation

water is pumped or diverted from the canal to serve residents of the Redlands area. The irrigation season lasts approximately 6 months from April 15 to October 15. The rest of the year, the power canal is operated solely for generation of hydroelectric power. Redlands Water and Power Company operates the diversion dam to maintain the 850 cfs flow into their canal as much as possible.

Redlands Water and Power Company hold the most senior water rights within the Gunnison River Basin and holds water right decrees as follows:

670 cfs – priority date July 31, 1905.

Allowed uses: irrigation, domestic stock, and power generation.

80 cfs – priority date June 26, 1941.

Allowed uses: irrigation and power generation.

100 cfs – priority date 1995

Allowed uses: irrigation, domestic stock, and power generation.

Total Water Right: 850 cfs

Impacts: The No Action Alternative would have no direct affect on Redlands water rights and uses. However, taking no action would result in failure to make sufficient progress in Recovery Program efforts to restore endangered fish populations. This could trigger future Service consultations under the Endangered Species Act, which could create confrontations between endangered fish recovery and water users. In addition, entrainment of Colorado pikeminnow and razorback sucker would continue and Redlands Water and Power Company would be in violation of the prohibitions of take under the Endangered Species Act.

Proposed Action: Providing fish screening for the Redlands Power Canal would not significantly affect Redlands Water and Power Company's ability to use their existing water rights. Under an existing agreement with the Colorado Water Conservation Board, Reclamation ensures deliveries to maintain 300 cfs below the Redlands Diversion Dam with releases from the upstream Aspinall Unit for Redlands Fish Passage operations. Under the proposed action, 40 cfs of the 300 cfs would be used for fish screen operations.

A bypass channel capable of diverting Redlands total water right (850 cfs) is included in the fish screen designs. During times when the fish screen is inoperable because of ice or debris, isolation bulkheads would be used to bypass the fish screen. The installation of the fish screen would result in a minimal canal head loss. To make up for the head loss, Redlands could consider installing flashboards on the diversion dam to raise the water elevation.

Issue: Reclamation has an existing agreement with the Colorado Water Conservation Board to maintain 300 cfs of river flow below the Redlands Diversion Dam.

Existing Conditions: In 1996, Reclamation entered into an agreement with the Colorado Water Conservation Board to deliver water from the Aspinall Unit to ensure that a minimum of 300 cfs was maintained downstream of the Redlands Diversion Dam in the months of July through October for the benefit of the Colorado pikeminnow and razorback sucker. The 300 cfs is used to operate the Redlands fish passage way and maintain adequate flows to allow endangered fish to navigate upstream from the Colorado River to the fish passage entrance.

During the drought of 2002, RWPC entered into an agreement with the Colorado River District to forego power production in lieu of payment for power interference to prevent a Gunnison River call to upstream junior water users. This also allowed for the continued operation of the fish passageway and sufficient flows downstream of the dam during the drought.

Reclamation is in the process of beginning to prepare an environmental impact statement for re-operations of the Aspinall Unit to meet endangered fish flow recommendations. The flow recommendations call for releases from the Aspinall Unit that more closely resemble a natural hydrograph with high spring releases and lower base flows. Endangered fish flows to operate the Redlands fish passageway and fish screen will also be incorporated into the Aspinall re-operations.

No Action: Under the No Action Alternative, additional flows would not be needed for the Redlands fish screen.

Proposed Action: Under the proposed action, 40 cfs of the 300 cfs minimum flow below the Redlands Diversion Dam would be used to operate the fish screen. The 40 cfs would be diverted at the diversion dam into the Redlands Power Canal and returned to the Gunnison River via the fish return pipeline.

Water Quality

Issue: Fish screen construction could cause temporary water quality changes downstream. This could affect the ability of the downstream domestic water providers to meet drinking water standards and protect public safety.

Existing Conditions: The City of Grand Junction has a domestic water right of 18.6 cfs upstream of the Redlands Diversion Dam. This source is designed to supplemental other sources. There are no downstream domestic water providers in the Gunnison or Colorado River downstream of the Redlands Diversion Dam that would be affected. The closest domestic water

suppliers downstream of the Redlands Diversion Dam on the Colorado River, is located in Moab, Utah.

No Action: The No Action Alternative would have no affect on water quality.

Proposed Action: The proposed action may have minor impacts to water quality during construction. This could include increased river turbidity during construction and removal of a temporary cofferdam needed to construct the fish return outlet structure. Construction would occur during the winter months when the Gunnison River flows are low and Reclamation would request authorization the U.S. Army Corps of Engineers under Regional General Permit No. 57, Projects beneficial to the Upper Colorado Endangered Fishes Recovery. Discharge of concrete and riprap below the normal high water line would be necessary to protect the fish return pipeline during high flow events. The proposed action would have no affect on quality of the City of Grand Junction's water supplies.

VEGETATION AND LAND USE

During construction of the proposed action alternative, an increase in noise and traffic would occur. To date, Reclamation has not been advised of concerns for disturbances during construction. Any complaints would be resolved on a case-by-case basis. Access for construction, operations and maintenance would utilize existing roadways.

Issue: The Gunnison River provides highly valued habitat and floodplain functions that need to be considered during construction of the fish screen.

Existing Conditions: The Gunnison River Basin is primarily rural in nature. A majority of the roughly 8,000 square-mile watershed is comprised of National Forest or Bureau of Land Management (BLM) lands. Valleys are largely private and were originally developed for ranching, farming and mining. In recent years, recreation, retirement living, and second-home development have become important. In the vicinity of the Redlands Diversion Dam, lands are a combination of privately owned parcels and sand and gravel operations. Redlands Water and Power Company, and federal lands managed by the BLM. The BLM owns the land on the west side of the Gunnison River at the Redlands Diversion Dam site. RWPC has used this BLM land since at least 1918.

The Southern Pacific Railroad's line parallels the east bank of the Gunnison River in this area and primarily hauls coal in unit trains. The railroad and the Redlands Diversion Dam are the primary land use. The City of Grand Junction has a water intake structure on the east side of the diversion dam on land leased from RWPC. This structure is located upstream of the proposed fish screen. The Department of Energy has a compound immediately downstream of the fish screen location on the east side of the Gunnison River. Residential homes and limited farming occur downstream to confluence of the Gunnison and Colorado Rivers.

The proposed fish screen site is located approximately ¼ miles downstream of the Redlands Diversion Dam. The area's dominate features include the Redlands Canal and a large linear riparian corridor between the canal and the Gunnison River (See Figure 3). The riparian corridor is dominated by mature cottonwoods trees, willows, Russian olives, tamarisk, wild rose, and skunkbush sumac. The area west of the canal and away from the influence of the river changes to an upland community comprised predominately of greasewood, rabbitbrush and saltbush. Disturbed areas are dominated by kochia, bindweed, grasses and forbs.

Impacts

No Action: The No Action alternative would have no effect on existing vegetation or current land uses.

Proposed Action: The fish return pipeline would disturb about 1 acre of riparian vegetation with grubbing and trenching. This would result in the loss of approximately 10 mature cottonwood trees. After construction, the area would be re-vegetated with cottonwood and willow plantings and appropriate riparian grasses. Fifty cottonwood and willow seedlings (5 to 1 ratio) would be planted in the area to mitigate for the loss of the 10 mature cottonwood trees. A 50-ft. corridor (25 feet on each side of the pipe) would be maintained to protect the pipe and allow for access for maintenance of the fish return outlet structure.

Reclamation would request authorization from the Army Corps of Engineers under Regional General Permit No. 57, Projects beneficial to the Colorado River endangered fishes, for the construction of the fish screen. The fish return pipeline outlet structure would require discharge of concrete and fill material; however no jurisdictional wetlands would be affected. No changes in land use are predicted as a result of the proposed action.

FISH AND WILDLIFE RESOURCES

Existing Conditions:
The affected area, for the purposes of assessing fish and wildlife, corresponds to the 100 year floodplain of the Gunnison River from the Redlands Diversion Dam to the Gunnison River's confluence with the Colorado River. There are no significant concerns for project effects on fish and wildlife resources in general; concerns focus on avoiding and minimizing adverse impacts to endangered species as well as complementing efforts to establish self-sustaining population of endangered Colorado River fish species.

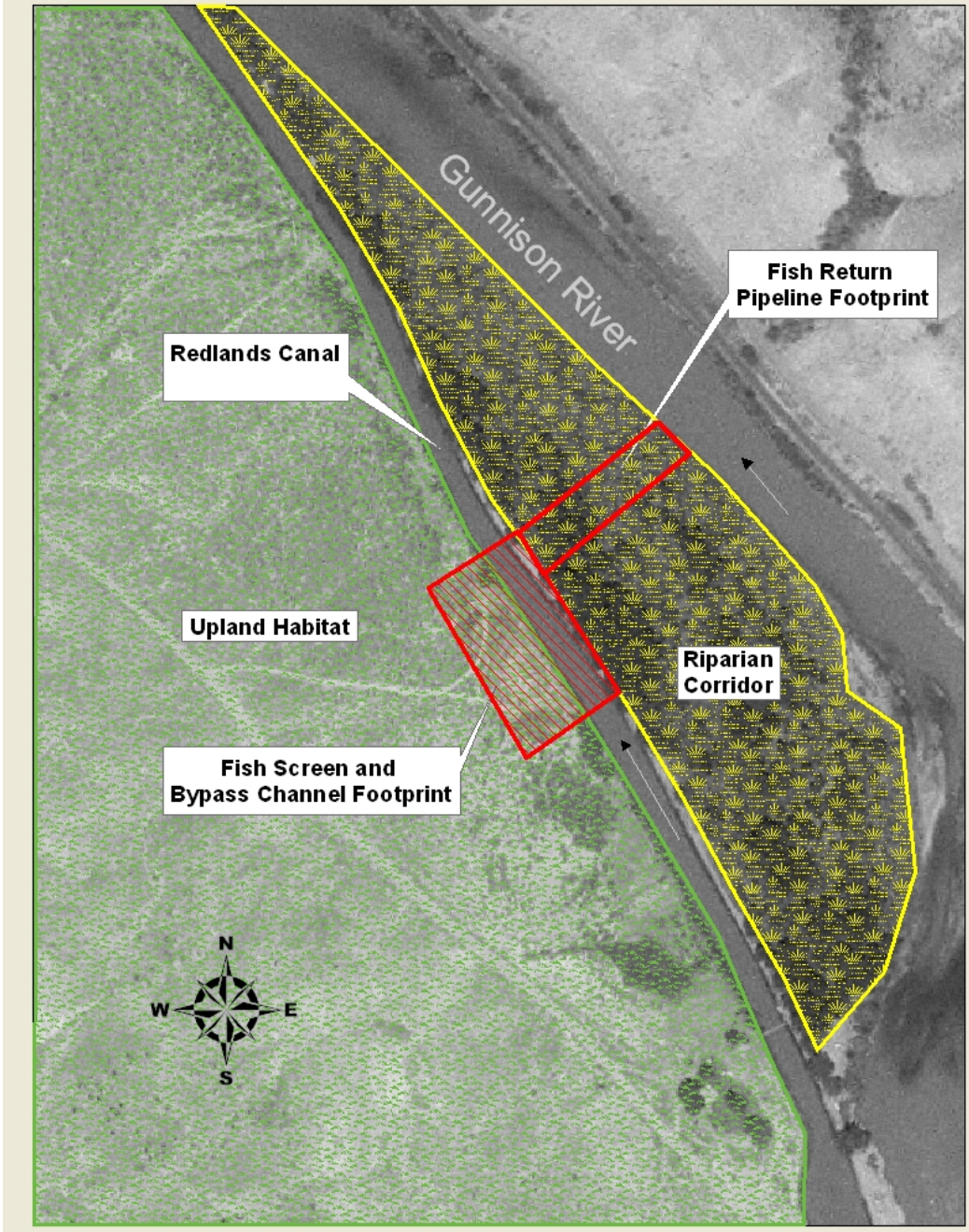


Figure 3-Fish Screen Site Vegetation Types

Riparian habitats along the Gunnison River support diverse wildlife populations. Similar riparian habitats along the Colorado and Gunnison rivers support both resident and migratory wildlife species and these species are also likely to occur within the project area (Reclamation, 2003b).

Common terrestrial species at Walter Walker SWA along the Colorado River include Northern sagebrush lizard (*Sceloporus graciosus grciosus*), Northern whiptail (*Cnemidophorus tigris septentrionalis*), gopher snake (*Pituophis catenifer*), great blue heron (*Ardea herodias*), Canada goose (*Branta canadensis*), mallard (*Anas platyhynchos*), rock dove (*Columba livia*), mourning dove (*Zenaida macroura*), common nighhawk (*Chordeiles minor*), black-chinned hummingbird (*Archilochus alexandri*), tree swallow (*Tachycineta bicolor*), black-billed magpie (*Pica pica*), Amercian robin (*Turdus migratorius*), European starling (*Sturnus vulgaris*), Western meadowlark (*Sturnella neglecta*), Brewer's blackbird (*Euhagus cyanocephalus*), house finch (*Carpodacus mexicanus*), house sparrow (*Passer domesticus*), masked shrew (*Sorex cinereus*), Western small-footed myotis (*Myotis californicus stephensi*), long-legged myotis (*Myotis volans interior*), hoary bat (*Lasiurus cinereus cinereus*), desert cottontail (*Sylvilagus audubonii*), black-tailed jackrabbit (*Lepus californicus*), white-tailed jackrabbit (*Lepus townsendii*), least chipmunk (*Tamias minimus*), Northern pocket gopher (*Thomomys talpoides*), Ord's kangaroo rat (*Dipodmys ordii sanrafaeli*), deer mouse (*Peromyscus maniculatus*), house mouse (*Mus musculus*), common muskrat (*Ondatra zibethicus*), coyote (*Canis latrans*), long-tailed weasel (*Mustela frenata*), striped skunk (*Mephitis mephitis*), bobcat (*lynx rufus*), mule deer (*odocoileus hemionus*), tiger salamander (*Ambystoma tigrinum*), Woodhouse's toad (*Bufo woodhousii woodhousii*), bullfrog (*Rana catesbeiana*), and Northern leopard frog (*Rana pipiens*) (CDOW 2002).

Common fish species in the Gunnison River include blue head sucker (*Catostomus discobolus*), flannelmouth sucker (*Catostomus latipinnis*), roundtail chub (*Gila robusta*), common carp (*Cyprinus carpio linnaeus*), fathead minnow (*Pimephales promelas*), red shiner (*Cyprinella lutrensis*), sand shiner (*Noptropis stamineus*), and channel catfish (*Ictalurus punctatus*) (Burdick, 2001).

No Action: The No Action alternative would have no effect on terrestrial wildlife species and canal entrainment of common fish species would continue with unscreened diversions.

Proposed Action: Local wildlife would likely be temporarily displaced and avoid the project area during construction. Construction would occur outside the nesting season, and long-term effects are predicted to be negligible. Re-vegetation of disturbed areas using riparian species would also assist in minimizing effects to local wildlife. Operation and maintenance of the fish screen would be beneficial to common fish species. Canal entrainment would be minimized and screened fish would be returned to the Gunnison River.

THREATENED AND ENDANGERED SPECIES

Formal consultation with the Service under the Endangered Species Act will be initiated for the Redlands Fish Screen. Results of the formal consultation (Biological Opinion) will be included in the Final Environmental Assessment. Informal consultation identified the following threatened and endangered species which may occur within the project area:

Common Name	**Scientific Name**	**Status**
Colorado pikeminnow	*Ptychocheilus lucius*	Endangered
razorback sucker	*Xyrauchen texanus*	Endangered
humpback chub	*Gila cypha*	Endangered
bonytail	*Gila elegans*	Endangered
bald eagle	*Haliaeetus leucocephalus*	Threatened

Proposed Action effects to threatened and endangered species were analyzed in a biological assessment (BA) prepared by Reclamation (Appendix A). The purpose of the fish screen is to minimize incidental take of endangered Colorado River fishes that currently or may occur as a result of the Redlands Diversion. The scope of the biological assessment was broadened to also incorporate RWPC operations and depletions under Reclamation's Section 7 consultation under the Endangered Species Act. Incidental take as a result of RWPC's operations was identified and is a primary reason for the Recovery Program's participation in the construction of the fish screen.

Current fish screening technology would not prevent incidental take from occurring. Incidental take would be minimized; however, larval fish and eggs could still become entrained in the canal even after construction of the fish screen. Larger fish could also become entrained when the fish screen is bypassed. In addition, some fish could be harmed by impingement on the fish screen or while passing through the fish return pipe. Because of the potential for some incidental take to continue even after the fish screen is constructed, the proposed action is predicted to "may affect, likely to adversely affect", the endangered Colorado River fishes. During informal discussions, the Service has indicated that the overall proposed action effects would be beneficial to the endangered fish and that an "incidental take permit" would be issued to the Federal agencies participating in the Recovery Program to authorize incidental take. RWPC would also be extended incidental take coverage for their historic operations and depletions.

Bald eagles are known to use portions of the lower Gunnison River during the winter months (Shannon, 2003), however no winter concentration areas have been identified within 1-mile of the project area. In addition, no nesting occurs within the project area. Therefore, the proposed action is predicted to have no affect on Bald eagles.

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 impacts on these assets are 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 minority or low income populations in the project area, and no adverse effects related to environmental justice are predicted.

SOCIOECONMIC CONDTIONS

Existing Conditions: The Gunnison River has long been a key factor in the economy of the Gunnison Basin. The river supports agricultural enterprises, municipal water supplies, and a growing recreation sector in the economy. The operation of the Redlands Diversion Dam and other water projects in the basin is important for the maintenance of existing agricultural and suburban lifestyles in the area.

Impacts

No Action: Under the No Action alternative, the Recovery Program would not provide funding for the construction, operation and maintenance of a fish screen in the Redlands Power Canal. Without assistance from the Recovery Program, RWPC would bear all costs associated with minimizing incidental take associated with RWPC operations. As a small water district, these added costs would have a significant impact to RWPC and its costumers. Under the Recovery Program, recovery implementation costs are covered by federal power revenues, state cost sharing contributions and Federal appropriations.

Proposes Action: Construction of the fish screen would result in additional expenditures in the local economy, but it is a relatively small project and would not significantly affect the local economy nor place a strain on any services such as schools or transportation.

Because operation and maintenance costs would be funded by the Recovery Program, RWPC would not bear additional expenses directly associated with the construction, operation or maintenance of the fish screen. However, the fish screen would result in a small head loss at the

diversion dam which could reduce power generation and reduce revenues. Redlands, separate from the proposed action, is considering installing flashboards on the diversion dam as a possibility to offset the head loss as a result of the fish screen. RWPC would not be able to generate hydropower during construction of the fish screen. This would result in about 4 months loss of winter power generation revenue.

CULTURAL RESOURCES

Existing Conditions:

Over the years, land in the immediate project area has been disturbed by various construction and maintenance projects related to the Redlands Diversion Dam, railroad construction, agricultural practices, gravel mining, and other activities. Evidence of prehistoric resources in not present, however, historic resources occur.

The Redlands Dam Complex, including the diversion dam, canal system, and power plant, has been recorded as a historic site (5ME764) and is considered eligible for the National Register of Historic Places by the Colorado Historical Society. During construction of the fish passageway at the Redlands Diversion Dam, the dam was considered to be non-contributing to the historic nature of the complex due to extensive rehabilitation and modifications with modern materials.

Impacts:

No Action: The No Action alternative would have no affect on cultural or historic resources.

Proposed Action: Recent archaeological resource surveys identified no cultural resources within the project area; therefore the proposed action would have no affect on cultural resources. Reclamation, in consultation with the Colorado Historic Preservation Officer, determined that the proposed action would have no adverse affect on the Redlands Dam Complex. Reclamation's construction contracts would have "stop work" clauses, which would stop construction activities in the event cultural resources were uncovered. Work would not resume until consultation with the Colorado Historic Preservation Officer was completed.

RECREATION RESOURCES

Existing Conditions: The Gunnison River between Delta and Grand Junction is used by motorized and non-motorized boaters. Recreational floating occurs in the summer months. There is also some fall and early winter floating associated with hunting. The river is accessible upstream at Whitewater and a 1 day float can be made between Whitewater and the Redlands Diversion Dam.

The Redlands Diversion Dam is a barrier to uninterrupted river travel, and boaters must portage around the dam. In the late 1990's, the Bureau of Land Management constructed a boat take-out and portage around the Redlands Diversion Dam.

No Action: The No Action alternative would have no effect on recreation resources.

Proposed Action: Construction of the fish screen in the Redlands Canal would have no effect on recreational uses. The Redlands Diversion Dam would continue to be a barrier to uninterrupted river travel; however, the Bureau of Land Management take-out continues to allow portage around the dam and fish passageway.

CUMULATIVE IMPACTS

Cumulative impacts are impacts on the environment, which result from the incremental impact of the action, when added to other past, present, and reasonably foreseeable future 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 irrigation and hydropower generation, urban development, gravel mining and river recreation. The Recovery Program has implemented floodplain restoration projects, fish passages and fish screen, and other Recovery Implementation Program Action Plan (RIPRAP) elements, which cumulatively have result in beneficial impacts on the endangered Colorado River fishes.

Implementation of all or any of these projects has affected and continues to affect the human environment including but not limited to water quality, water rights, socioeconomic and fish and wildlife resources. Incremental cumulative impacts associated with implementation of the proposed action are anticipated to be too small to measure.

SUMMARY AND ENVIRONMENTAL COMMITMENTS

In summary, the primary effect of the proposed action would minimize incidental take of Colorado pikeminnow, razorback sucker and bonytail in the Redlands Power Canal. Canal head loss as a result of fish screen would likely reduce RWPC ability to generate hydroelectric power at the Redlands Power Plant. RWPC is investigating installing flashboards at the Diversion Dam to recover the head loss. RWPC would lose 4 months of revenue from hydropower generations while the fish screen is being constructed. Local wildlife may avoid the project area during construction; however this impact is predicted to be short-term in nature. In addition, water quality would likely be temporarily impacted during construction of the fish screen bypass

pipeline, however this impacted is predicted not to be significant because best management practices would be applied.

The proposed action would have no affect on water rights, cultural and historic properties, environmental justice or Indian Trust assets.

Mitigation Measures

1) Temporary construction easements would be obtained from RWPC prior to beginning construction of the fish screen.
2) Section 404 authorization would be obtained from the Army Corps of Engineers prior to initiating construction activities.
3) Fish screen construction would be limited to between October 15 and April 15th to avoid impacting irrigation deliveries and take advantage of low river flows.
4) Areas disturbed during construction would be revegetated with appropriate upland and riparian plant species (cottonwood trees, willows, Indian Ricegrass, etc.). Reclamation would mitigate onsite for the loss of mature cottonwood trees by planting cottonwood saplings at a ratio of 5 saplings for each mature tree.

CHAPTER 4-CONSULATATION AND COORDINATION

GENERAL

In April 2003, a scoping letter was mailed to local, state and federal agencies, water users, environmental organizations, recreationists, adjoining land owners obtained for Mesa County GIS data, and other interested parties. Issues, comments and concerns were requested by May 19, 2003. During the public scoping, no issues, comments or concerns were identified.

Reclamation has coordinated development of the Proposed Action in consultation with the Service to address endangered fish needs, and with RWPC to ensure compatibility with RWPC's facilities and operations.

Reclamation has informally consulted with the Colorado Historic Preservation Officer and the Service. The Colorado Historic Preservation Officer has concurred with the determination that the Proposed Action will not adversely affect historic properties. Formal consultation with the Service will be initiated to address incidental take and results of the consultation will be included in the final EA.

REFERENCES

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U.S. Bureau of Reclamation (Reclamation) 2003A. Biological Assessment for the Redlands Water and Power Company Fish Screen on the Gunnison River. Western Colorado Area Office, Grand Junction, Colorado.

U.S. Bureau of Reclamation (Reclamation) 2003B. Environmental Assessment, Floodplain Habitat Restoration at the Walter Walker and Butch Craig Bottomland Sites. Western Colorado Area Office, Grand Junction, Colorado.

APPENDIX A

BIOLOGICAL ASSESSMENT