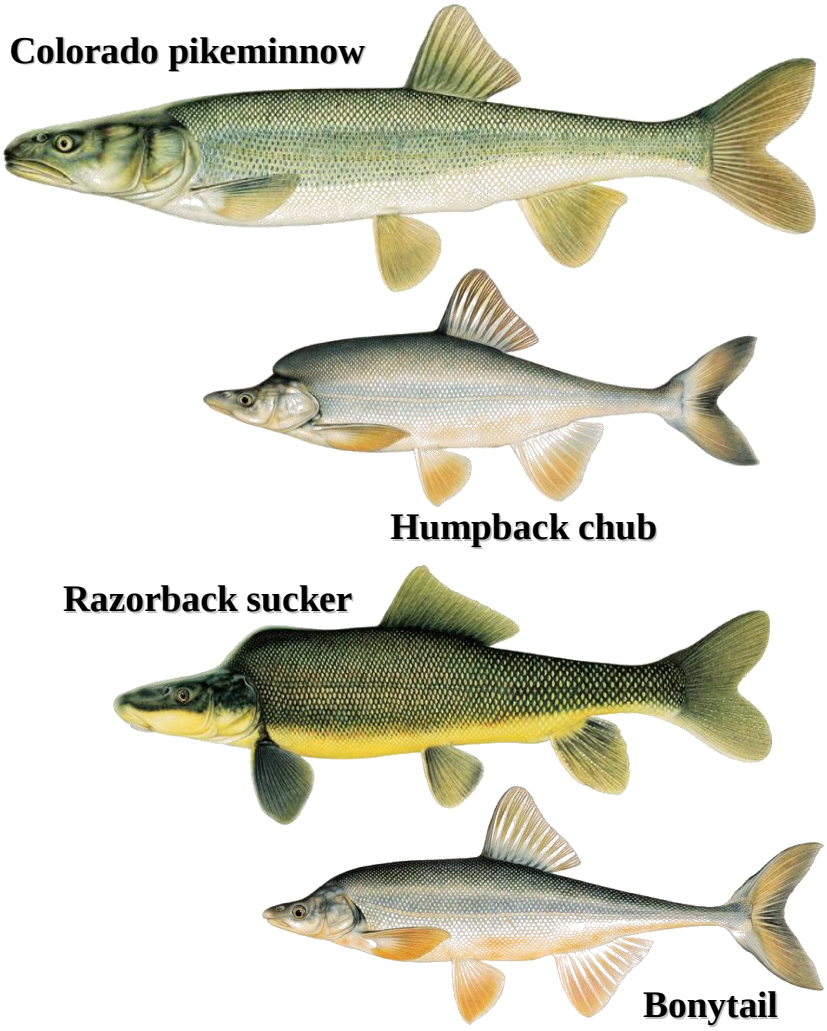
Report to Congress

Utilization of Power Revenues for Annual Base Funding of the Upper Colorado River and San Juan River Basin Recovery Implementation Programs



February 2010

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A Report to Congress

Submitted by the

Secretary of the Interior

– February 2010 –

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EXECUTIVE SUMMARY

The Upper Colorado River Endangered Fish Recovery Program (Upper Colorado Recovery Program) and the San Juan River Basin Recovery Implementation Program (San Juan Recovery Program) were established under cooperative agreements as multi-agency partnerships in 1988 and 1992, respectively. Recovery program partners include the states of Colorado, New Mexico, Utah, and Wyoming; Bureau of Reclamation; U.S. Fish and Wildlife Service; Bureau of Land Management; National Park Service; Bureau of Indian Affairs; Southern Ute Indian Tribe; Ute Mountain Ute Tribe; Jicarilla Apache Nation; Navajo Nation; environmental organizations; water users; and power customers. The shared goal of these recovery programs is to recover populations of endangered humpback chub, bonytail, Colorado pikeminnow, and razorback sucker while water use and development continues to meet human needs. Actions of the recovery programs provide Endangered Species Act (ESA) compliance for more than 1,800 Federal, tribal, and non-Federal water projects depleting more than 3 million acre-feet of water per year in the Colorado and San Juan rivers and their tributaries in Colorado, Utah, Wyoming, and New Mexico.

Congress has long recognized the importance of the recovery programs through bipartisan support of appropriations and authorizing legislation. Public Law (P.L.) 106-392, signed into law on October 30, 2000, authorizes up to $6 million per year (adjusted annually for inflation) of Colorado River Storage Project power revenues for annual base (non-capital) funding: up to $4 million for the Upper Colorado Recovery Program and up to $2 million for the San Juan Recovery Program. Annual base funding provides for operation and maintenance of capital projects, implementation of recovery actions other than capital projects, monitoring and research to evaluate the need for or effectiveness of recovery actions, and program management to carry out the recovery programs. The U.S. Fish and Wildlife Service, States, American Indian Tribes, and water users also provide additional annual and in-kind funding for these activities.

P.L. 106-392 requires the Secretary of the Interior (Secretary) to submit a report to the appropriate Committees of the United States Senate and House of Representatives on the utilization of power revenues for annual base funding of the recovery programs, and to make a recommendation regarding the need for continued annual base funding from power revenues beyond fiscal year 2011 that may be required to achieve the goals of these recovery programs.

P.L. 106-392 provides that power revenues used for the recovery programs are credited toward the repayment obligations assigned to power interests under the Colorado River Storage Project. The current authorization to use power revenues for annual base

funding of recovery program actions, other than operation and maintenance of capital projects and monitoring, expires in fiscal year 2011.

Annual base funds from power revenues contribute significantly to the successful implementation of recovery actions by both recovery programs, including instream flow identification, evaluation, and protection; habitat restoration and maintenance; management of nonnative fish impacts; endangered fish propagation and stocking; research, monitoring, and data management; public information and involvement; and program management.

Subsequent to passage of P.L. 106-392, $36,725,200 in power revenue base funds have been expended or obligated by the Upper Colorado Recovery Program, and $17,778,400 by the San Juan Recovery Program (2001–2009). The table below displays a cost impact analysis if the Act is not reauthorized under its current operating guidelines after 2011.

Recovery Program	Currently Available Annual Base Funding (FY 2008 Dollars)1/	Reductions in Annual Base Funding After 2011 Without Reauthorization 2/	Remaining Activities Eligible for Annual Base Funding After 2011 Without Reauthorization
Upper Colorado	$4,678,000	-$1,756,600	$2,921,400
San Juan	$2,339,000	-$829,600	$1,509,400
Total:	**$7,017,000**	**-$2,586,200**	**$4,430,800**
Percent:	**100%**	**-37%**	**63%**

1/ Power revenues initially authorized for use as annual base funds by P.L. 106-392 indexed to 2008 dollar levels.

2/ Includes some program management costs directly related to monitoring and O&M of Capital Projects that may be eligible for continued power revenue funding after fiscal year 2011.

Without reauthorization, annual base funding from power revenues for nonnative fish management, research, public information and involvement, and program management would be significantly reduced for both recovery programs. This would delay, and likely could prevent attainment of recovery goals and would undermine the recovery programs' achievements in restoring populations of the endangered fishes. As a result, ESA compliance provided by recovery program actions for more than 1,800 water projects, as well as future projects, would not likely continue. ESA compliance depends not only on implementing recovery actions, but is ultimately and directly linked to long-term improvement in the status of fish populations and achievement of recovery.

Based on survival and propagation rates tracked by the U.S. Fish and Wildlife Service, these recovery programs have promoted recovery of endangered fish species while working within the bounds of interstate water compacts, State water and wildlife laws, and tribal rights.

The administration supports funding mechanisms that provide for adequate cost sharing responsibilities among all stakeholders and project beneficiaries. The Department of the Interior, as it has previously testified, is supportive of these recovery efforts. The

Administration is still continuing to assess the program's effect on overall Federal budgetary resources and explore further cost sharing ideas. On February 12, 2010, President Obama signed Public Law 111-139 into law. The Statutory Pay-As-You-Go Act of 2010 provides that revenue and direct spending legislation cannot, in the aggregate, increase the on-budget deficit. As we go forward with our recovery efforts, we should explore ways to ensure that these recovery programs can be carried out in a way that is PAYGO neutral.

Recommendations:

1) As stated in testimony delivered before the Senate Subcommittee on Water and Power of the Committee on Energy and Natural Resources on July 23, 2009, and before the House Committee on Water and Power of the Committee on Natural Resources on September 22, 2009, the Department supports extending the authorization to utilize Colorado River Storage Project hydropower revenues at the current level to support the base funding needs of both Programs. P.L.106-392 should be amended to provide continued annual base funding at currently authorized levels through 2023 for all activities originally authorized and which are necessary to achieve recovery. The expected date of recovery of the razorback sucker and bonytail is 2023.

2) The language in the existing legislation that states that base funding and depletion charges previously agreed upon should be retained: *"Nothing in this Act shall otherwise modify or amend existing agreements among participants regarding base funding and depletion charges for the Recovery Implementation Programs."* This provides that annual and in-kind funding by the U.S. Fish and Wildlife Service, States, American Indian Tribes, and water users identified in the original agreements will continue.

3) Continue to explore cost savings and other cost-share financing mechanisms for these recovery programs. The Department of the Interior, as it has previously testified, is supportive of these recovery efforts. The Administration is still continuing to assess the program's effect on overall Federal budgetary resources and explore further cost sharing ideas. The Administration believes that those who share in the benefits of these recovery projects should help to fund them.

1.0 INTRODUCTION

This document fulfills the requirement of 106-392 that the Secretary submit a report to Congress on the utilization of power revenues for annual base funding of the Upper Colorado Recovery Program and the San Juan Recovery Program. P.L. 106-392 also requires the Secretary to make a recommendation regarding the need for continued annual base funding from power revenues beyond fiscal year 2011 that may be required to achieve the goals of these recovery programs.

The objectives of this report are to:

- Describe the recovery programs, and summarize their actions and accomplishments to date;
- Document the utilization of power revenues for annual base funding of the recovery programs;
- Identify annual base-funding needs of the recovery programs beyond fiscal year 2011, and;
- Provide conclusions and recommendations on the continued annual base funding of the recovery programs beyond fiscal year 2011.

2.0 DESCRIPTION OF THE RECOVERY PROGRAMS

The Upper Colorado Recovery Program and the San Juan Recovery Program were established in 1988 and 1992, respectively, under cooperative agreements to recover endangered fish species while providing water for human needs. The goal of both recovery programs is to achieve the recovery criteria for the Upper Colorado River Basin as use and development of water resources proceeds in compliance with applicable State and Federal laws, including State water law; the Endangered Species Act (ESA); interstate compacts; Supreme Court decrees; and Federal trust responsibilities to the Southern Utes, Ute Mountain Utes, Jicarillas, and Navajos. Both recovery programs consist of multiple partners. The U.S. Fish and Wildlife Service provides staffing and management for the recovery programs.

Although this document fills the P.L. 106-392 requirement to report on utilization of power revenues for base funding, it is important to note the Upper Colorado and San Juan River Basin fish recovery programs are funded from both appropriated Federal funds and base funding (from power revenues). In general, the programs use appropriated funds for capital expenditures and base funding for operation and maintenance. As of March 2010, the Upper Colorado and San Juan River Basins fish recovery programs had expended a total of approximately $214,735,600 in Federal funds since their inception in 1988 and 1992, a combination of appropriated dollars and base funding from power revenues. Reclamation's FY 2011 Budget includes $8.4 million (an increase of $4.9 million) for the Upper Colorado River Endangered Fish Recovery program to provide habitat management; augmentation and conservation of genetic integrity; and conservation of other aquatic and terrestrial endangered species. The increase will fund construction of a system that automates canal operations to conserve and redirect water for in-stream flows.

Actions of the recovery programs provide the reasonable and prudent alternatives for water development and management projects undergoing ESA Section 7 consultation within the Upper Colorado River Basin, i.e., the Colorado and San Juan rivers and their tributaries in Colorado, Utah, Wyoming, and New Mexico (Figure 1). In addition, the recovery programs provide ESA compliance for fulfillment of Federal trust responsibilities to American Indian Tribes and the continued operation of Federal water and power projects in accordance with authorized purposes.

Key to the recovery programs' success is coordination and collaboration among stakeholders. Each partner fully participates in developing and implementing management actions that will achieve the recovery goals and lead toward delisting of the endangered fishes. The recovery programs use an adaptive-management approach to develop and implement management actions. With this approach, the recovery programs are able to continually evaluate and revise actions as new information from research and

monitoring becomes available, and to adapt to changing factors such as the recent years of prolonged drought across the West.

2.1 UPPER COLORADO RECOVERY PROGRAM

The Upper Colorado Recovery Program is recovering humpback chub *Gila cypha*, bonytail *Gila elegans*, Colorado pikeminnow *Ptychocheilus lucius*, and razorback sucker *Xyrauchen texanus* in the Colorado River and its tributaries in Colorado, Utah, and Wyoming (Figure 1). The recovery program was initiated in 1988 with the signing of a cooperative agreement by the Governors of Colorado, Utah, and Wyoming; Secretary of the Interior; and Administrator of Western Area Power Administration .

Box 1.—Partners of the Upper Colorado Recovery Program.

State of Colorado
State of Utah
State of Wyoming
Bureau of Reclamation
Colorado River Energy Distributors Association
Colorado Water Congress
National Park Service
The Nature Conservancy
U.S. Fish and Wildlife Service
Utah Water Users Association
Western Area Power Administration
Western Resource Advocates
Wyoming Water Association

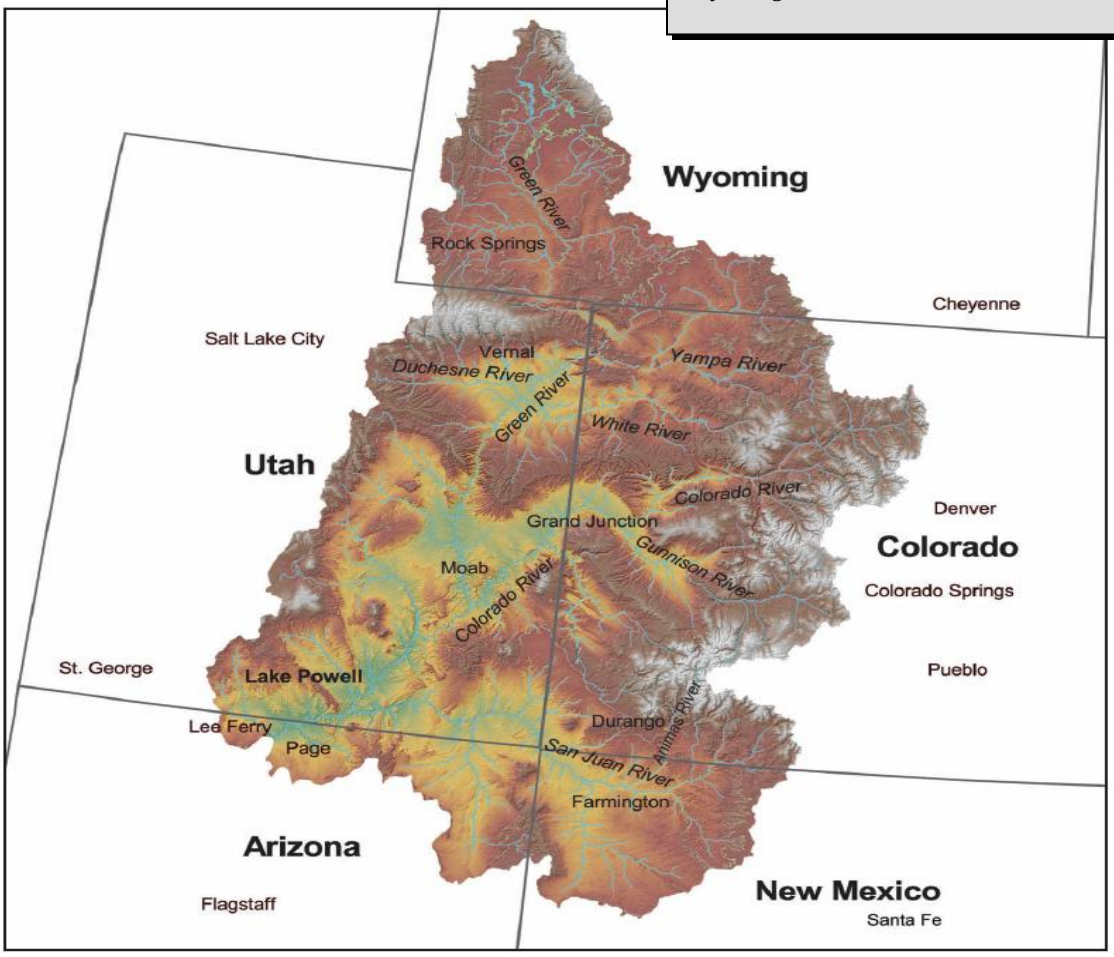

FIGURE 1.—Upper Colorado River Basin. The geographic scope of the Upper Colorado Recovery Program is the Colorado River and its tributaries in Colorado, Utah, and Wyoming. The geographic scope of the San Juan Recovery Program is the San Juan River and its tributaries in Colorado, Utah, and New Mexico.

2.2 SAN JUAN RECOVERY PROGRAM

The San Juan Recovery Program is recovering Colorado pikeminnow and razorback sucker in the San Juan River and its tributaries in Colorado, New Mexico, and Utah (Figure 1). The recovery program was established in 1992 with the signing of a cooperative agreement by the Governors of Colorado and New Mexico; Secretary of the Interior; Southern Ute Indian Tribe; Ute Mountain Ute Indian Tribe; and Jicarilla Apache Nation. The Bureau of Land Management, Navajo Nation, and conservation interests joined the recovery program in 1992, 1996, and 2007, respectively.

Box 2.—Partners of the San Juan Recovery Program.

State of Colorado
State of New Mexico
Bureau of Indian Affairs
Bureau of Land Management
Bureau of Reclamation
Conservation Interests
Jicarilla Apache Nation
Navajo Nation
Southern Ute Indian Tribe
Ute Mountain Ute Tribe
U.S. Fish and Wildlife Service
Water Development Interests

2.3 RECOVERY GOALS

The overall goal for recovery of the four endangered fishes is to achieve naturally self-sustaining populations and protect the habitat on which those populations depend. Specific, basin-wide (i.e., both the Upper and Lower Colorado River basins) recovery goals for humpback chub, bonytail, Colorado pikeminnow, and razorback sucker were approved by the U.S. Fish and Wildlife Service on August 1, 2002, and are currently in revision. The Upper Colorado and San Juan recovery programs implement actions to achieve the recovery goals in the Upper Colorado River Basin.

The recovery goals describe conditions necessary for downlisting and delisting each of the fish species by: 1) identifying site-specific management actions necessary to minimize or remove threats; 2) establishing objective, measurable criteria that consider demographic and genetic needs for naturally self-sustaining, viable populations; and 3) providing estimates of the time to achieve recovery. Downlisting of the fishes from "endangered" to "threatened" and removing the species from ESA protection (delisting) will be considered by the U.S. Fish and Wildlife Service once the necessary management actions are achieved, and fish populations reach and maintain the required demographic and genetic self-sustaining standards (Box 3).

Box 3.—Current estimated year for downlisting and delisting each of the endangered fishes.

Species	Downlist	Delist
Humpback chub	2013	2016
Colorado pikeminnow	2013	2021
Razorback sucker	2020	2023
Bonytail	2020	2023

2.4 RECOVERY PROGRAM ELEMENTS

The recovery programs implement actions to achieve the recovery goals in five major program elements. Full implementation of these elements is needed to achieve recovery. The five program elements are:

1. **Habitat Management**: Identify and provide adequate instream flows.
2. **Habitat Development**: Restore and maintain habitat.

3. **Nonnative Fish and Sportfishing**: Reduce the threat of certain nonnative fish species while maintaining sportfishing opportunities.
4. **Endangered Fish Propagation and Stocking**: Produce genetically diverse fish in hatcheries and stock them in the river systems.
5. **Research, Monitoring, and Data Management**: Provide data on life-history requirements of the endangered fishes, and monitor effectiveness of recovery actions toward achieving the recovery goals.

Actions within program elements 1–3 are directly associated with site-specific management actions identified in the recovery goals to minimize or remove threats (see section 4.1). Propagation and stocking of endangered fish (element 4) are conducted to reestablish or augment self-sustaining populations (see section 4.2). Monitoring of endangered fish populations and stocked fish (element 5) is conducted to evaluate progress toward meeting the demographic recovery criteria for the Upper Colorado River Basin (see section 4.3). In addition to these five elements, a **public information and involvement** element (see section 4.4) increases public awareness and support for recovery of the endangered fishes. Given the geographic scope of recovery actions and the number and diversity of parties involved and affected, public outreach is an essential element of the recovery programs. **Program management** directs the day-to-day and long-term implementation of recovery actions.

3.0 ANNUAL BASE FUNDING

3.1 AUTHORIZATION

Base funding, as defined in Section 2(8) of P.L. 106-392, means *"funding for operation and maintenance of capital projects, implementation of recovery actions other than capital projects, monitoring and research to evaluate the need for or effectiveness of any recovery action, and program management, as necessary to carry out the recovery implementation programs…"*

P.L. 106-392 authorizes up to $4 million per year in annual base funding from power revenues (adjusted annually for inflation after 2000) for the Upper Colorado Recovery Program. The States have also maintained the original funding commitments pre-dating P.L. 106-392 and contribute approximately $360,000 per year to base funding through in-kind services or agency cash contributions. The U.S. Fish and Wildlife Service provides approximately $1.1 million annually for program management and operation/maintenance of hatcheries. Water users contribute to annual base funding via a one-time fee on new water projects based on average annual net water depletions. The fee is adjusted each year for inflation. The current fee is $18.99 per acre-foot.

P.L. 106-392 provided up to $2 million per year in annual base funding from power revenues (adjusted annually for inflation after 2000) for the San Juan Recovery Program. The U.S. Fish and Wildlife Service also provides approximately $200,000 per year in funding for program management. In-kind funding by the States, American Indian Tribes, and water users is also provided. Since 1992 approximately $1.5 million of in-kind contributions have been provided.

3.2 EXPENDITURES

Subsequent to passage of P.L. 106-392, $36,725,200 in annual base funds from power revenues have been expended or obligated by the Upper Colorado Recovery Program, and $17,778,400 by the San Juan Recovery Program (2001–2009) (Table 1). Table 2 shows how these power revenue base funds have been distributed among program elements (including costs of operation and maintenance of approximately $100 million in capital projects constructed by the recovery programs). Power revenues contribute significantly to the actions of both recovery programs. Progress toward recovery with power revenues and other recovery program funds is summarized in Section 4.0.

TABLE 1.—Annual obligations of power revenue base funds by the Upper Colorado and San Juan recovery programs 2001–2009

Year	Upper Colorado Recovery Program	San Juan Recovery Program
2001	$2,973,600	$1,111,700
2002	$2,793,000	$1,684,300
2003	$3,698,700	$1,666,900
2004	$4,371,400	$1,848,100
2005	$4,202,200	$2,114,800
2006	$4,598,800	$2,322,500
2007	$4,502,200	$2,277,200
2008	$4,678,000	$2,315,700
2009	$4,907,300	$2,437,200
Total	**$36,725,200**	**$17,778,400**
Projected		
2010	*$4,843,500*	*$2,356,600*
2011	*$4,843,500*	*$2,356,600*

TABLE 2.—Distribution of power revenue base funds by the Upper Colorado and San Juan recovery programs among program elements, 2001 through 2009.

Program Element	Upper Colorado Recovery Program	San Juan Recovery Program
Instream Flow Identification and Protection (Habitat Management)	$4,407,000	$1,244,500
Habitat Restoration (Habitat Development)	$3,672,500	$5,155,700
Nonnative Fish Management	$8,446,800	$1,955,600
Propagation and Genetics Management	$8,079,600	$2,311,200
Research and Monitoring	$6,610,500	$5,511,300
Information, Education and Public Involvement	$734,500	$177,800
Program Management	$4,774,300	$1,422,300
Total:	**$36,725,200**	**$17,778,400**

4.0 RECOVERY PROGRAM ACCOMPLISHMENTS

The recovery programs are accomplishing significant recovery actions under each program element. These successes are a direct result of the active commitment and participation of the recovery programs' partners.

4.1 REDUCTION OF THREATS

The recovery goals for the endangered fishes identify site-specific management actions that reduce threats to the species associated with the ESA's five listing factors (Box 4). Because recovery is the reverse of listing, threat associated with each of the five listing factors must be minimized or removed before reclassification (i.e., downlisting or delisting) of a listed species can be considered.

Box 4.—ESA listing factors.

A. Present or threatened destruction, modification, or curtailment of habitat or range.
B. Overutilization for commercial, recreational, scientific, or educational purposes.
C. Diseases or predation.
D. Inadequacy of existing regulatory mechanisms.
E. Other natural or manmade factors affecting continued existence.

As mentioned in section 2.4, actions of the recovery programs in the Habitat Management, Habitat Development, and Nonnative Species and Sportfishing elements are those directly associated with site-specific management actions identified in the recovery goals to minimize or remove threats associated with ESA listing factors A and C (Box 4). Principal accomplishments in these three recovery elements are summarized in Appendix A

4.1.1 Habitat Management

Actions within this program element focus on identification and provision of instream flows necessary to achieve recovery of the endangered fishes. Research, monitoring, and adaptive management identify, evaluate, and revise flow recommendations to meet the flow-related life-history and habitat requirements of the endangered fishes.

The recovery programs' partners manage water resources to benefit the endangered fishes and their habitats in accordance with State water law, individual water rights, interstate compacts, and Federal authorizing legislation. Water for the endangered fishes is managed through a variety of means, including: leases and contracts for water supplies, coordinated water releases from upstream reservoirs, efficiency improvements to irrigation systems to reduce water diversions (thus leaving more water in the river), and re-operation of Federal dams and reservoirs.

4.1.2 Habitat Development

Habitat for endangered fish is restored and maintained by constructing and operating fish passages at diversion dams, constructing and operating fish screens in diversion dam canals to keep fish from entering and becoming trapped, and acquiring and restoring floodplain habitat to serve primarily as fish nursery areas. All actions to restore and maintain habitat are monitored to evaluate their effectiveness, and management changes are implemented based on evaluation results to further improve habitat conditions.

4.1.3 Nonnative Fish and Sportfishing

Predation or competition by nonnative fish species is a serious threat to the endangered fishes, and poses the biggest obstacle to recovery and the greatest long-range management challenge for the recovery programs. Fourteen species or subspecies of native fish occurred historically in the Upper Colorado River Basin. Over the past 100 years, more than 50 nonnative fish species have been introduced into the Upper Colorado River Basin and now dominate many fish communities. Currently, smallmouth bass *Micropterus dolomieu* (and other sunfish and bass, e.g., largemouth bass *Micropterus salmoides*), northern pike *Esox lucius*, channel catfish *Ictalurus punctatus*, and common carp *Cyprinus carpio* are identified by biologists as the most problematic nonnative fishes and are the principle target species for management.

Management actions of the recovery programs to reduce the abundance of nonnative fish and their impacts to endangered fish recognize the dual responsibilities of State and Federal wildlife agencies to conserve native fish species while providing sportfishing opportunities. Nonnative fish management actions include: mechanical removal of nonnative fish from rivers, restriction of nonnative fish stocking, screening of off-river ponds and reservoirs to prevent escapement of fish to rivers, identifying the chronic sources of nonnative fish to rivers, changes in State bag and possession limits on warm-water sportfish to increase angler harvest, and monitoring the responses of nonnative and native fishes to the recovery programs' management actions. Where feasible, sportfish removed from rivers are translocated to local off-channel ponds or reservoirs to provide fishing opportunities. Research, monitoring, and adaptive management identify, evaluate, and revise management strategies. Annual workshops involving all recovery program participants and other fish experts are held to further review results of field activities and develop appropriate modifications to the nonnative fish management strategies.

Over the past six years, progress has been made in reducing the abundance of some of the target nonnative fish species in certain rivers of the Upper Colorado River Basin. However, a great deal of work remains to identify the methods and levels of management needed to minimize the threat of nonnative fish predation or competition and achieve and maintain recovery of the endangered fishes. Ultimately, the success of these nonnative fish management activities will be measured by the response of the endangered fish populations.

4.2 ENDANGERED FISH PROPAGATION AND STOCKING

Six hatchery facilities produce bonytail, razorback sucker, and Colorado pikeminnow necessary to meet the annual and long-range stocking targets of the recovery programs. Broodstocks and propagation of young are managed to maximize the genetic diversity of stocked fish to increase the likelihood that stocked fish can cope with local habitat conditions in the wild. Both recovery programs finalized stocking plans in 2003 to expedite reestablishment or enhancement of naturally self-sustaining populations and help achieve the demographic criteria of the recovery goals. Razorback sucker and bonytail are stocked in the upper Colorado River and Green River systems, and Colorado pikeminnow and razorback sucker are stocked in the San Juan River system. The survival, growth, and reproduction of stocked fish are monitored to evaluate and improve stocking strategies (see discussion of stocking success by species in Section 4.3). Stocked fish count toward recovery goal criteria when they are reproducing in the wild and their offspring are surviving to adulthood.

4.3 RESEARCH, MONITORING, AND DATA MANAGEMENT

Actions within this element are an integral part of overall endangered fish management and recovery. Research and monitoring generate information on reproduction, growth, and survival of endangered fish in the wild, and data management systems serve as repositories and analytical tools for that information. Data are used to evaluate and adjust management actions and recovery strategies through adaptive management. Estimates of the abundance of endangered fish are used to monitor progress toward achieving the recovery goals.

4.3.1 Fish Status

Wild populations of Colorado pikeminnow and humpback chub occur in the upper Colorado and Green river systems. These populations have been studied since the 1960s, and population dynamics and responses to management actions have been evaluated since the early 1980s. Hatchery-produced, stocked fish (see section 4.2) form the foundation for the reestablishment of naturally self-sustaining populations of razorback sucker in the upper Colorado, Green, and San Juan river systems; bonytail in the upper Colorado and Green river systems; and Colorado pikeminnow in the San Juan River. Significant changes in the status of the four endangered fishes generally are not detected on a year-to-year basis. Closed-population, multiple mark-recapture estimators for tracking population trends are being used (where possible) in the upper Colorado and Green river systems to derive population point estimates for wild Colorado pikeminnow and humpback chub.

As explained in Section 2.3, the recovery goals for the endangered fishes identify site-specific management actions to minimize or remove threats and establish criteria for naturally self-sustaining populations. A key requirement of the population criteria is no net loss of fish over established monitoring periods. Downward trends in some wild populations of Colorado pikeminnow and humpback chub have been observed during dry weather and low river runoff conditions since 1999. Biologists believe that these declines

are a result of reduced recruitment that can be largely attributed to increases in certain problematic nonnative fishes and habitat changes associated with the recent drought. The recovery programs are actively implementing and adaptively evaluating management actions to reduce these threats (e.g., increased nonnative fish control; see Section 4.1) and reverse the downward population trends to achieve and maintain self-sustaining populations. Meanwhile, progress is being made to reestablish specific populations through stocking (see Sections 4.3.1.1, 4.3.1.3, and 4.3.1.4). The recovery programs' annual base-funded activities are intended to ensure that the endangered fishes receive the full benefit of the capital projects and address other on-going threats that are not alleviated by those infrastructure projects.

Following are summaries of the currently available information on the status of each species related to the demographic criteria of the recovery goals for the Upper Colorado River Basin.

4.3.1.1 Colorado Pikeminnow

There are two wild Colorado pikeminnow population centers, one in the upper Colorado River system and one in the Green River system, consisting of separate spawning stocks whose young and adults mix. This exchange of fish sets up a population network or "metapopulation," with the Green River system being the largest and most important unit.

Box 5.—Demographic criteria of the 2002 recovery goals for Colorado pikeminnow in the Upper Colorado River Basin

Downlisting	Delisting
Over 5 years of monitoring:	**For 7 years after downlisting:**
• Maintain exchange of fish among populations	• Maintain exchange of fish among populations
• Maintain populations in Green and Colorado river systems with no net loss of fish	• Maintain populations in Green and Colorado river systems with no net loss of fish
• Green River system > 2,600 adults	• Green River system > 2,600 adults
• Colorado River system > 700 adults and establish 1,000 subadults in San Juan River	• Colorado River system > 1,000 adults or Colorado River system > 700 adults and San Juan River > 800 adults

- The first block of population estimates for the Green River population was completed in 2003. The population estimates ranged from 3,100 adult pikeminnow in 2001 to 2,300 adults in 2003 (Bestgen et al. 2005). The USFWS has determined the population criterion for downlisting this population is 2,600 adults; additional criteria require self-sustained persistence of at least this population size and sufficient threat abatement. The next 3-year block of Green River population estimates was completed in 2008. Preliminary results of this effort (report under review) indicate that the Green River population increased throughout this 3 year period.
- The abundance of adult Colorado pikeminnow in the Colorado River was first estimated in 1992. Since that time, population estimates have fluctuated but generally increased from approximately 440 adults in 1992 to the most recent estimate of 890 adults in 2005 (Osmundson and White 2009). The population criterion for downlisting that population is 700 adults; additional criteria require self-sustained persistence of at least this population size and sufficient threat abatement.
- Prior to the initiation of a formal stocking program, there were fewer than 50 adult Colorado pikeminnow estimated to persist in the San Juan River in any given year and no wild pikeminnow have been detected since 1999. Since 2002, over 1,760,000

Colorado pikeminnow of different age classes have been stocked into the San Juan River. Efforts to re-establish self-sustaining populations of Colorado pikeminnow in the San Juan River through stocking of hatchery-produced fish are showing signs of success. From 2003 to 2008, over 3,000 stocked pikeminnow have been recaptured through the Program's research, monitoring, and management efforts. While few adult fish have been recently detected and reproduction is not detected every year, augmentation with hatchery produced fish has probably led to the largest population response of the endangered fish because of its direct impact on increasing endangered fish numbers. However, because the species is long-lived it will take many years to determine if the Program's stocking activities are successful.

4.3.1.2 Humpback Chub

Five humpback chub wild populations inhabit canyon-bound river reaches of the Colorado, Green, and Yampa rivers. The most current estimates of abundance of humpback chub from some of the historically smaller populations (e.g. Yampa River and Desolation/Gray Canyon on the Green River) indicate downward trends associated with increased abundance of nonnative fish that occurred during dry weather and low river runoff conditions since 1999. The Upper Colorado Program has responded by increasing its nonnative fish removal and beginning to bring individuals into captivity at least initially as a refuge so their genetic diversity is not lost.

- About 3,000 adults occur in Black Rocks and Westwater canyons on the Colorado River. Together, these populations have been identified as one core population.
- About 1,000 adults occur in Desolation/Gray canyons on the Green River, and this population has been identified as a second core population.
- Populations in Yampa Canyon on the Yampa River and in Cataract Canyon on the Colorado River are small (as they were historically), each consisting of up to a few hundred adults.

Box 6.—Demographic criteria of the 2002 recovery goals for humpback chub in the Upper Colorado River Basin

Downlisting	Delisting
Over 5 years of monitoring:	**For 3 years after downlisting:**
• Maintain five populations with no net loss of fish	• Maintain five populations with no net loss of fish
• One core population > 2,100 adults	• Two core populations, each > 2,100 adults

4.3.1.3 Razorback Sucker

Wild populations of razorback sucker were essentially gone from the entire Upper Colorado River and San Juan rivers by the early 1990s. At that time, it was estimated that only a few hundred very old razorback sucker remained in the Green River. Efforts to re-establish self-sustaining populations of razorback sucker in the Green, Colorado and San Juan rivers through stocking of hatchery-produced fish and restoration of important floodplain habitat are showing positive results. Fish are being recaptured several years after stocking, spawning aggregations of fish in reproductive condition are being observed, captures of larvae document successful reproduction, and captures of some juveniles document at least limited recruitment. A population estimate of the stocked fish in the Upper Colorado River Basin is currently underway, but that information is not

expected for another 6-12 months. However, the Upper Colorado Program will initiate a specific razorback sucker monitoring program in 2010 in response to indicators of increasing populations mentioned above.

No wild razorback suckers were found in the San Juan River during the seven-year research period (1991-1997) and stocking of hatchery-produced fish began in 1997. Although early stocking goals were not attained, there were positive effects of this stocking as the estimated razorback sucker population increased from 268 in 2000 to approximately 1,200 in 2004. Since 2004, 90% of total augmentation goals have been reached. Of all the management actions to recover razorback sucker in the San Juan River, stocking/augmentation with hatchery produced fish has probably led to the largest population response of the endangered fish because of its direct impact on increasing endangered fish numbers. However, because the species is long-lived it will take many years to determine if the Program's stocking activities are successful. Nonetheless, hatchery-reared razorback sucker, especially fish larger than 350 mm introduced into the San Juan River, have survived and reproduced, as evidenced by recapture data and collection of larval fish.

Box 7.—Demographic criteria of the 2002 recovery goals for razorback sucker in the Upper Colorado River Basin

Downlisting	Delisting
Over 5 years of monitoring:	**For 3 years after downlisting:**
• Maintain two reestablished populations, one in Green River system and one in either Colorado River system or in San Juan River, each > 5,800 adults, with no net loss of fish	• Maintain two reestablished populations, one in Green River system and one in either Colorado River system or in San Juan River, each > 5,800 adults, with no net loss of fish

- In 2000–2005, 2,550 stocked razorback suckers were recaptured from the Colorado, Gunnison, and Green rivers, and 1,900 were recaptured from the San Juan River; some of these fish were recaptured 4–9 years after stocking.
- Stocked razorback suckers are moving between the Colorado, Gunnison, and Green rivers, suggesting that a network of populations (or a "metapopulation") similar to the Colorado pikeminnow situation may eventually be formed.
- Razorback suckers stocked in the Colorado, Green, and San Juan rivers have been recaptured in reproductive condition, and captures of larvae in the Green, Gunnison, Colorado, and San Juan rivers demonstrate successful reproduction.
- Numbers of larvae collected from the Green River in 2007 were the highest ever recorded.
- Survival of larvae through the first year is evidenced by captures of juveniles in the Green, Gunnison, and San Juan rivers.

4.3.1.4 Bonytail

The bonytail is the rarest of the four endangered Colorado River fishes and probably the farthest from recovery. Before stocking began, the species had essentially disappeared in the Upper Colorado River Basin and little was known about its biology. A key aspect to bonytail recovery is research and monitoring of stocked fish to determine the life-history and habitat requirements of

Box 8.—Demographic criteria of the 2002 recovery goals for bonytail in the Upper Colorado River Basin

Downlisting	Delisting
Over 5 years of monitoring:	**For 3 years after downlisting:**
• Maintain two reestablished populations, one in Green River system and one in Colorado River system, each > 4,400 adults, with no net loss of fish	• Maintain two reestablished populations, one in Green River system and one in Colorado River system, each > 4,400 adults, with no net loss of fish

the species, and ways to modify the stocking plan to improve the survival of stocked fish.

- Stocking efforts have been expanded to place fish into floodplain wetlands to enhance their growth and survial.
- Stocked bonytails are being recaptured in several locations and habitats throughout the Green and upper Colorado rivers.
- About 200 stocked bonytails were recaptured in 2004−2005, all within 1 year after stocking.

4.4 PUBLIC INFORMATION AND INVOLVEMENT

Actions to increase public awareness and support for the endangered fishes are implemented through a strategic and multi-faceted communication program. Strategies are evaluated and adapted as needed to achieve public information and outreach goals. Full public participation and understanding of recovery program activities are achieved through public meetings and the distribution of a wide range of printed educational materials, including newsletters, fact sheets, and briefing documents. Both recovery programs also maintain comprehensive web sites; coloradoriverrecovery.org and http://www.fws.gov/southwest/sjrip/. Print and broadcast news media are key sources of information to a broad range of individuals, and the recovery programs proactively seek news media coverage on a variety of program activities. Wherever possible, the recovery programs involve local communities with outreach efforts, which has resulted in the establishment of several interpretive exhibits.

4.5 ESA COMPLIANCE FOR WATER PROJECTS

The Upper Colorado and San Juan recovery programs respond to the challenge of water management by working cooperatively with local, State, Federal, and Tribal agencies to meet the needs of people and endangered fish. The recovery programs' goal is to achieve full recovery (delisting) of the endangered fishes, not just to avoid jeopardy (offset impacts of water project depletions) under the ESA. The recovery programs serve as a vehicle for ESA compliance for water development and management activities by participants, including the Federal government. Responsibilities to offset water project depletion impacts do not fall on individual projects or their proponents. The recovery programs provide ESA compliance for more than 1,800 water projects depleting more than 3 million acre-feet per year (Tables 3 and 4). This is accomplished through cooperative efforts. No lawsuits have been filed on ESA compliance for any of these water projects since the two recovery programs were constituted. Principles for consultation under the Upper Colorado Recovery Program are found at coloradoriverrecovery.org/documents-publications/foundational-documents/RIPRAP/RIPRAPapril2-09.pdf, and at http://www.fws.gov/southwest/sjrip/pdf/DOC_Sec7Principles.pdf for the San Juan Recovery Program.

TABLE 3.—Upper Colorado Recovery Program summary of ESA Section 7 consultations (1/1998 through 9/30/2009). (A list of projects consulted on under the Upper Colorado Recovery Program can be found at: coloradoriverrecovery.org/documents-publications/section-7-consultation/consultation-list.html.)

State	Number of Consultations	Historic Depletions Acre-feet/year	New Depletions Acre-feet/year	**Total** Acre-feet/year
Colorado	1,107	1,483,770	178,247	**1,662,017**
Utah	197	517,670	75,607	**593,276**
Wyoming	161	83,498	33,352	**116,851**
Regional[1]	238	(regional)	(regional)	**0**
Total:	**1,703**	**2,084,938**	**287,206**	**2,372,144**

[1]Amount included in individual States' new depletions.

TABLE 4.—San Juan Recovery Program summary of baseline depletions and depletions that have undergone ESA Section 7 consultation.

State	Number of Consultations	Depletions Acre-feet/year
New Mexico	19	653,109
Colorado	114	217,746
Utah	13	9,144
Total:	**146**	**879,999**

5.0 CONTINUING ACTIVITIES NEEDED TO FULFILL RECOVERY PROGRAMS' GOALS: IMPORTANCE OF POWER REVENUE ANNUAL BASE FUNDING

Annual base funds are used for a significant portion of each major element of the Upper Colorado and San Juan recovery programs: Habitat Management (instream flow identification and protection); Habitat Development (habitat restoration and maintenance); Nonnative Fish and Sportfishing (management of nonnative fish and sportfish impacts); Endangered Fish Propagation and Stocking; and Research, Monitoring, and Data Management; as well as public information and involvement and a portion of the recovery program management costs. The following sections describe elements of both recovery programs that would be eligible and those that would not be eligible for continued funding with base funds from power revenues under the current authorization without additional amendment. Activities and costs are based on the recovery programs' fiscal year 2008 work plans and budgets. Future activities and allocation of dollars among activities may change through adaptive management.

As the program activities evolve, appropriate Federal and Non-Federal cost-sharing will remain important. It may be beneficial if the Federal cost commitment and non-Federal commitment are more closely aligned.

5.1 RECOVERY PROGRAM ACTIVITIES ELIGIBLE FOR POWER REVENUE ANNUAL BASE FUNDING AFTER FISCAL YEAR 2011 WITHOUT AMENDING THE CURRENT AUTHORIZATION

Operation and maintenance of capital projects.—Both the Upper Colorado and San Juan recovery programs have constructed capital projects that require continued operation and maintenance. Operation and maintenance of capital projects includes operation and maintenance of water-augmentation facilities, flooded bottomlands, fish screens, fish passages, and propagation facilities.

Monitoring.—The term "monitoring" is used in the definition of "base funding" (*"monitoring and research to evaluate the need for or effectiveness of any recovery action . . ."*); however, no definition of "monitoring" was included in P.L. 106-392. Based on the wording included, it is apparent that monitoring includes evaluation of the *"need for or effectiveness of any recovery action."* Monitoring is commonly understood to include data collection, associated analyses, and reporting and sharing of those data and analyses. Synthesized monitoring data are then used to develop recommendations for management action continuations, suspension, or adjustments to accomplish desired outcomes, ultimately resulting in downlisting and delisting of the endangered fishes.

In addition, the framework documents for both recovery programs make it clear that an adaptive-management, cooperative approach is to be undertaken, where ongoing information gathered about the status and trends of the species populations are used as feedback to determine whether changes in management actions are required.

Elements of each recovery program that would be eligible for continued funding with base funds from power revenues under the current authorization without additional amendment are described below.

5.1.1 Habitat Management

In both recovery programs, power revenues funded research used to develop flow recommendations for each of the major rivers including the Green, Yampa, White, Colorado, Gunnison, and San Juan rivers. Subsequent to development of the flow recommendations, annual base funding is being used to evaluate flow recommendations through the recovery programs' adaptive-management processes. Modifications to the flow recommendations and adjustment of operations of major Federal projects such as Flaming Gorge Dam, Navajo Dam, and the Aspinall Unit dams can be anticipated as a result of these processes. Information collected for adaptive management includes data on stream flows, sediment transport, and area of inundation to provide backwater and flooded bottomland habitat in high-priority areas. Operation and maintenance (O&M) for capital projects and monitoring are associated with this recovery program element. Those activities and costs for each recovery program are identified in Table 5.

TABLE 5.—Anticipated annual habitat management operation and maintenance and monitoring costs for the Upper Colorado and San Juan recovery programs. (Activities and costs are based on the recovery programs' fiscal year 2008 work plans and budgets.)

Recovery Program	Activity	Annual O&M (in FY 2008 dollars)
Upper Colorado	Recovery Program gage O&M	$89,400
	Hydrology support staff	$93,700
	Ruedi Reservoir O&M for 10,825 acre-feet	$49,500
	Elkhead Reservoir O&M	$39,000
	USGS sediment monitoring	$57,300
	Green River peak flow analysis	$40,000
	Total:	**$368,900**
San Juan	Recovery Program gage O&M	$6,700
	Hydrology support staff	$82,600
	Long-term channel monitoring and habitat mapping	$320,000
	Total:	**$409,300**

5.1.2 Habitat Development

Habitat restoration and maintenance for both recovery programs includes "undoing" habitat fragmentation through installation and operation of fish passages and fish screens at major irrigation diversion dams. These facilities have been constructed with capital

funds, whereas operation and maintenance expenses for these facilities are paid from annual base funds (Table 6). In addition, the Upper Colorado Recovery Program has acquired and restored floodplains to facilitate endangered fish recovery. Annual base funds are used to provide for management of floodplain easements and to support evaluations of the effectiveness of floodplains in providing nursery habitat for young fish.

TABLE 6.—Anticipated annual operation and maintenance costs for fish passages and fish screens constructed by the Upper Colorado and San Juan recovery programs, and management and evaluation of floodplain habitats acquired and restored by the Upper Colorado Recovery Program. (Activities and costs are based on the recovery programs' fiscal year 2008 work plans and budgets.)

Recovery Program	River	Restoration Facility	Annual O&M (in FY 2008 dollars)
Upper Colorado	Gunnison	Redlands Water and Power Company fish passage and screen	$140,800
	Colorado	Grand Valley Project fish passage and screen	$83,800
		Grand Valley Irrigation Company fish passage and screen	$65,600
		Price Stubb fish passage (2009 and beyond)	$40,000
	Green	Tusher Wash fish screen (2010 and beyond)	$40,000
	Gunnison, Colorado, and Green	Management of floodplain easements	$50,000
		Evaluation and maintenance of floodplain habitats	$56,100
		Total:	**$476,300**
San Juan	San Juan	Public Service Company of New Mexico fish passage	$81,900
		Hogback fish passage and screen	$100,000
		Total:	**$181,900**

5.1.3 Endangered Fish Propagation and Stocking

The Upper Colorado and San Juan recovery programs have expended $4,413,000 and $1,200,000, respectively, on development of hatchery facilities for propagation and genetics management of endangered fish. Facilities used by the Upper Colorado Recovery Program are located at Grand Valley Endangered Fish Facility, Grand Junction, Colorado; Ouray National Fish Hatchery, Vernal, Utah; Wahweap State Fish Hatchery, Big Water, Utah; J.W. Mumma Native Aquatic Species Restoration Facility, Alamosa, Colorado; and leased grow-out ponds and flooded bottomlands in Colorado and Utah. Facilities used by the San Juan Recovery Program are located at Dexter National Fish Hatchery and Technology Center, Dexter, New Mexico; Uvalde National Fish Hatchery, Uvalde, Texas; and grow-out ponds on the Navajo Nation's Reservation. Recovery program costs for annual operation and maintenance of these facilities, including costs of fish stocking, are identified in Table 7.

TABLE 7.—Anticipated Upper Colorado and San Juan recovery programs' annual operation and maintenance costs for propagation facilities and fish stocking. (Activities and costs are based on the recovery programs' fiscal year 2008 work plans and budgets.)

Recovery Program	Propagation Facility	Annual O&M (in FY 2008 dollars)
Upper Colorado	Grand Valley Endangered Fish Facility	$467,000
	Ouray well-field development/repair	$5,000
	Wahweap State Fish Hatchery	$211,700
	J.W. Mumma Native Aquatic Species Restoration Facility	$79,500
	Leased grow-out ponds and flooded bottomlands	$13,000
	Total:	**$776,200**
San Juan	Dexter National Fish Hatchery and Technology Center	$172,900
	Uvalde National Fish Hatchery	$106,100
	NAPI Ponds (Navajo Nation)	$162,200
	Total:	**$441,200**

5.1.4 Research, Monitoring, and Data Management

Over the history of the recovery programs, this program element has included the entire basic information gathering and species population assessment activities on the endangered fishes necessary to inform, conduct, formulate adjustments to and "drive" the other recovery program elements. The recovery programs' research, monitoring and data management activities provided the basis for understanding habitat needs, developing genetically sound propagation programs, etc. Monitoring and data management continue to actively track fish populations. The Upper Basin Recovery Program is developing a specific research framework to track and link population monitoring with appropriate management actions through the concept of adaptive management. Adaptive management provides an iterative process of linking fish population patterns with Recovery Program management actions.

Monitoring includes the following current activities of both recovery programs:

- Monitoring native and nonnative fish populations to determine the effectiveness of nonnative fish management.
- Monitoring fish populations to determine the effectiveness of stocking programs.
- Laboratory identification and curation of small fish collected in the field.
- Monitoring endangered fish populations, including larval, young-of-the-year, and adults.
- Developing population estimates for the endangered fishes to determine progress toward recovery.
- Purchase of PIT tags to monitor individual fish.
- Database management.

Total annual power revenue base funding for monitoring activities is approximately $1,300,000 for the Upper Colorado Recovery Program and approximately $477,000 for the San Juan Recovery Program.

5.1.5 Summary

Current activities eligible for annual base funding from power revenues beyond fiscal year 2011 without amending the authorizing legislation total approximately $2.8 million for the Upper Colorado Recovery Program and approximately $1.5 million for the San Juan Recovery Program (Table 8).

TABLE 8.—Current activities and estimated costs (in FY 2008 dollars) of the Upper Colorado and San Juan recovery programs eligible for annual base funding from power revenues beyond fiscal year 2011 without amending P.L. 106-392.

Recovery Program Element or Activity	Recovery Program	
	Upper Colorado	San Juan
Habitat Management	$368,900	$409,300
Habitat Development	$476,300	$181,900
Propagation and Stocking	$776,200	$441,200
Monitoring	$1,300,000	$477,000
Total:	**$2,921,400**	**$1,509,400**

5.2 RECOVERY PROGRAM ACTIVITIES NOT ELIGIBLE FOR POWER REVENUE ANNUAL BASE FUNDING AFTER FISCAL YEAR 2011 WITHOUT AMENDING THE CURRENT AUTHORIZATION

Activities of the Upper Colorado and San Juan recovery programs that would not be eligible for annual base funding from power revenues beyond fiscal year 2011 without amendment of P.L. 106-392 total approximately $2,586,200 and are identified by category in Table 9 and described below. Activities and costs are based on the recovery programs' fiscal year 2008 work plans and budgets. Future activities and allocation of dollars among activities may change through adaptive management.

TABLE 9.—Current activities and costs (in FY 2008 dollars) of the Upper Colorado and San Juan recovery programs not eligible for annual base funding from power revenues beyond fiscal year 2011 without amending P.L. 106-392.

Recovery Program Element or Activity	Recovery Program	
	Upper Colorado	San Juan
Nonnative fish removal and translocation	$1,022,600	$455,400
Research	$TBD	$TBD
Public Information and Involvement	$55,000	$17,600
Program Management 1/	$679,000	$356,600
Total:	**$1,756,600**	**$829,600**

1/ Includes some program management costs directly related to monitoring and O&M of Capital Projects that may be eligible for continued power revenue funding after fiscal year 2011.

5.2.1 Nonnative Fish Removal and Translocation to Recreation Areas

One of the most pressing needs for achieving recovery is the continuation of effective large-scale nonnative fish management efforts. Nonnative fish are now recognized as the most serious impediment to recovery of the endangered fishes. Failure to effectively manage nonnative fish populations could nullify the positive effects of other recovery actions associated with habitat management and restoration and endangered fish stocking. Significant nonnative fish management costs are expected to be necessary into the foreseeable future.

5.2.2 Research

Research activities conducted historically by the recovery programs that would not fall under the definition of monitoring include genetics research and research on specific biological questions on the life-history and habitat needs of the endangered fishes. Research on endangered fish provided the basis for initial flow recommendations. Genetics research provided the basis for maintenance of genetic diversity needed to guide endangered fish propagation and stocking. Generally, research activities have diminished as basic unknowns have been resolved, and recovery program activities to recover the fish have increased. Currently, no research projects are included in the long-range plans of the Upper Colorado and San Juan recovery programs. However, there may be a need to conduct research activities in the future to address challenges associated with nonnative fish management, droughts, and modifications of flow patterns due to climate change and any unforeseen situations.

5.2.3 Public Information and Involvement

Public information and involvement efforts increase public awareness and support for recovery of the endangered fishes. Given the geographic scope of recovery actions and the number and diversity of parties involved and affected, public outreach is an essential element of the recovery programs. Full public participation and understanding of recovery program activities are achieved through public meetings and the distribution of a wide range of printed educational materials, including newsletters, fact sheets, and briefing documents. Print and broadcast news media are key sources of information to a broad range of individuals.

5.2.4 Program Management

Significant reductions in program management staff would seriously impair effective implementation of the recovery programs. Program management directs both day-to-day and long-term implementation of recovery actions. Program management includes the recovery program directors and their staffs of qualified fishery scientists and administrative professionals. The staffs provide quality and budgetary control on recovery program actions carried out by program participants and contractors. Recovery program staffs conduct independent annual assessments of program activities to

determine if actions are meeting expectations with respect to achieving recovery goals and recommend modifications, as needed.

Program management is integral to effective adaptive management of recovery activities and ultimately to recovery of the species. These complex recovery programs require the expertise of the recovery program directors' offices to manage projects, review results and data, implement and refine recovery activities, and support recovery program partners in their on-going participation in the recovery effort. The recovery program directors' offices are the only entities with an overview of the entire recovery effort and the ability to ensure the recovery programs are on track to recovery, or if not, to modify program activities to get back on track through effective adaptive management.

5.3 SUMMARY

Annual base funds from power revenues contribute significantly to the successful implementation of recovery actions by both recovery programs, including instream flow identification, evaluation, and protection; habitat restoration and maintenance; management of nonnative fish impacts; endangered fish propagation and stocking; research, monitoring, and data management; public information and involvement; and program management. Subsequent to passage of P.L. 106-392, $36,275,200 in power revenue base funds have been expended or obligated by the Upper Colorado Recovery Program, and $17,778,400 by the San Juan Recovery Program (2001–2009). The approximate fiscal impact of reductions in annual base funding after fiscal year 2011 without amendment to P.L. 106-392 are summarized in Table 10.

Funding reductions identified in Table 10 would delay, and likely prevent attainment of recovery goals and would set back the recovery programs' achievements in restoring populations of the endangered fishes. As a result, ESA compliance provided by recovery program actions for more than 1,800 water projects, as well as future projects, would not likely continue. ESA compliance depends not only on implementing recovery actions, but is ultimately and directly linked to long- term improvement in the status of fish populations and achievement of recovery. The administration supports funding mechanisms that provide for adequate cost sharing responsibilities among all stakeholders and project beneficiaries.

TABLE 10.—The approximate fiscal impact of reductions in annual base funding (estimates in fiscal year 2008 dollars) after fiscal year 2011 without reauthorization.

Recovery Program	Currently Available Annual Base Funding 1/	Reductions in Annual Base Funding After 2011 Without Reauthorization 2/	Remaining Annual Base Funding After 2011 Without Reauthorization
Upper Colorado	$4,678,000	-$1,756,600	$2,921,400
San Juan	$2,339,000	-$829,600	$1,509,400
Total:	**$7,017,000**	**-$2,586,200**	**$4,430,800**
Percent:	**100%**	**-37%**	**63%**

1/ Power revenues initially authorized for use as annual base funds by P.L. 106-392 indexed to 2008 dollar levels.
2/ Includes some program management costs directly related to monitoring and O&M of Capital Projects that may be eligible for continued power revenue funding after fiscal year 2011.

6.0 CONCLUSIONS AND RECOMMENDATIONS

The Upper Colorado and San Juan recovery programs have promoted recovery of endangered fish species while working in concert with interstate water compacts, State water and wildlife laws, and tribal rights. Congress has long recognized the importance of the recovery programs through bipartisan support of appropriations and authorizing legislation.

Under the current authorization, without amendment, annual base funding from power revenues beyond fiscal year 2011 will be limited to operation and maintenance of capital facilities and monitoring to evaluate the status and trends of fish populations and assess the impacts of program activities, including analysis of data and production of reports. Without amendment to the authorization and maintaining current uses to which power revenue base funding can be applied, funding from power revenues for the following activities would be significantly reduced in both recovery programs.

- Nonnative fish removal and translocation to recreation areas.
- Research.
- Public information and involvement programs.
- Program management funded with annual base funds.

6.1 RECOMMENDATIONS

1) As stated in testimony delivered before the Senate Subcommittee on Water and Power of the Committee on Energy and Natural Resources on July 23, 2009, and before the House Committee on Water and Power of the Committee on Natural Resources on September 22, 2009, the Department supports extending the authorization to utilize Colorado River Storage Project hydropower revenues at the current level to support the base funding needs of both Programs. P.L.106-392 should be amended to provide continued annual base funding at currently authorized levels through 2023 for all activities originally authorized and which are necessary to achieve recovery. The expected date of recovery of the razorback sucker and bonytail is 2023.

2) The language in the existing legislation that states that base funding and depletion charges previously agreed upon should be retained: *"Nothing in this Act shall otherwise modify or amend existing agreements among participants regarding base funding and depletion charges for the Recovery Implementation Programs."* This provides that annual and in-kind funding by the U.S. Fish and Wildlife Service, States, American Indian Tribes, and water users identified in the original agreements will continue.

3) Continue to explore cost savings and other cost-share financing mechanisms for these recovery programs. The Department of the Interior, as it has previously testified, is supportive of these recovery efforts. The Administration is still continuing to assess the program's effect on overall Federal budgetary resources and explore further cost sharing ideas. The Administration believes that those who share in the benefits of these recovery programs should help to fund them.

APPENDIX A

Accomplishments within three elements of the Upper Colorado and San Juan recovery programs associated with management actions to minimize or remove threats identified in the 2002 recovery goals for the endangered fishes.

Recovery Goals Management Actions	Upper Colorado Recovery Program Actions	San Juan Recovery Program Actions
Recovery Program Element: Habitat Management		
• Provide flows necessary to support recovered populations of the endangered fishes. ○ Identify, implement, evaluate, and revise flow regimes to benefit endangered fish populations in the upper Colorado River, Green River, and San Juan River systems.	• Developed and implementing flow recommendations for major rivers to benefit endangered fish. coloradoriverrecovery.org/documents-publications/technical-reports/instream-flow-identification-protection.html#flow • Continuing research and monitoring to evaluate flow recommendations, and revising recommendations through adaptive management. • Adopted a programmatic biological opinion for the upper Colorado River. coloradoriverrecovery.org/documents-publications/section-7-consultation/15-mr-pbo.html • Augmenting peak and base flows to improve fish habitat in the upper Colorado River with water released from upstream reservoirs.[a] • Proposed reoperation of Aspinall Unit dams, Gunnison River, to assist in recovery. • Bureau of Reclamation operates Flaming Gorge Dam, Green River, according to 2006 record of decision to assist in recovery. http://www.usbr.gov/uc/envdocs/eis/fgFEIS/index.html • Adopted management plan (coloradoriverrecovery.org/documents-publications/technical-reports/isf/yampa/YampaPlan.pdf) and programmatic biological opinion (coloradoriverrecovery.org/documents-publications/section-7-consultation/yampa-river-pbo.html) for the Yampa River Basin. • Augmenting base flows in the Yampa River with water released from Elkhead Reservoir, Elkhead Creek.[b] • Cooperating in management of flows in the Duchesne River to assist in recovery. • States of Colorado and Utah developed and selected methods for protection of instream flows.	• Developed and implementing flow recommendations for the San Juan River to benefit endangered fish. www.fws.gov/southwest/sjrip/DR_FRR.cfm • Bureau of Reclamation operates Navajo Dam according to 2006 record of decision to assist in recovery. http://www.usbr.gov/uc/envdocs/eis/navajo/navresops_Feis.html • Continuing research and monitoring to evaluate and revise flow recommendations, and revising recommendations through adaptive management. • Water users on the San Juan River developed and are implementing agreements to share water shortages during drought among all water users and the endangered fishes. http://www.fws.gov/southwest/sjrip/DR_SSD.cfm

Appendix A, continued:

Recovery Goals Management Actions	Upper Colorado Recovery Program Actions	San Juan Recovery Program Actions
Recovery Program Element: Habitat Development		
• Provide passage for the endangered fish to allow adequate movement. ○ Modify diversion dams to provide fish passage.	• Constructed and operating fish passages at three major diversion dams.[c] • Constructed fish passage at the Price-Stubb diversion dam, upper Colorado River.	• Constructed and operating fish passages at three major diversion dams.[c] • Construction of fish passages at the Arizona Public Service Company weir and the Fruitland diversion dam is being considered.
• Minimize entrainment of endangered fish in diversion canals.	• Constructed and operating fish screens in three major diversion canals.[d] • Construction of a fish screen in the Tusher Wash diversion canal, Green River, slated to begin in 2014.	• Construction of a fish screen in the Hogback diversion canal slated to begin construction in 2010.
• Provide floodplain habitat for razorback sucker. ○ Identify floodplain sites, assess acquisition opportunities, and acquire or procure easements.	• Inventoried and identified the restoration potential of floodplain habitats along 870 miles of river. • Developed and implementing management plans for priority floodplain habitats in the Green River (coloradoriverrecovery.org/documents-publications/technical-reports/hab/GreenFMP.pdf) and upper Colorado River (coloradoriverrecovery.org/documents-publications/technical-reports/hab/ColoRiv-FMP-2-27-06.pdf) systems. • Restored and managing about 2,700 acres of floodplain habitat.	**Not part of recovery actions in the San Juan River.*

Appendix A, continued:

Recovery Goals Management Actions	Upper Colorado Recovery Program Actions	San Juan Recovery Program Actions
Recovery Program Element: Nonnative Species and Sportfishing		

• Regulate nonnative fish releases and escapement into the river systems.
  ○ Develop, implement, evaluate, and revise procedures for stocking nonnative fish species.
• Control problematic nonnative fishes as needed.
  ○ Develop and implement control programs for nonnative fishes.
	• Adopted policy to identify and implement nonnative fish management actions needed to achieve recovery. coloradoriverrecovery.org/general-information/program-elements/nna/FinalNonnativeFishPolicy020404.pdf
	• Developed and implementing procedures for stocking nonnative fish species (coloradoriverrecovery.org/general-information/program-elements/nna/NNFStockingProceduresApr09.pdf).
	• Installed and operating fish screens at outlets to three reservoirs.[e]
	• Continuing selective removal of nonnative fish from constructed fish passages at diversion dams.
	• State of Colorado developed aquatic management plans for the upper Colorado, Gunnison, and Yampa rivers.
	• State of Colorado removed bag and possession limits on warm-water sportfish in critical habitat to increase angler harvest.
	• Continuing to evaluate chronic sources of bass to identify effective control actions.
	• Continuing mechanical removal (and translocation where feasible) of the most problematic nonnative fish species along nearly 430 river miles.
	• Continuing research and monitoring to evaluate responses of nonnative and native fishes to nonnative fish management actions, and revising management actions and strategies through adaptive management.
		• Continuing selective removal of nonnative fish from constructed fish passages at diversion dams.
		• Continuing mechanical removal (and translocation where feasible) of the most problematic nonnative fishes along nearly 125 river miles.
		• Continuing research and monitoring to evaluate responses of nonnative and native fishes to nonnative fish management actions, and revising management actions through adaptive management.

[a]Coordinated reservoir operations allow upstream reservoir owners to voluntarily release water to enhance river peak flows (about 28,500 acre-feet of water was released in 2006). In 1990–1999, about 19,000 acre-feet of water per year was released from upstream reservoirs to enhance river base flows. Those releases increased to about 48,000 acre-feet on average per year beginning in 2000; contributing to this increase is water conserved by improvements to the Grand Valley Water Project canal system, which has reduced water diversions by 10–16% while meeting irrigation demands. [b]The recovery program partnered with the Colorado River Water Conservation District on a 13,000 acre-foot enlargement of Elkhead Reservoir to provide up to 5,000 acre-feet of permanent water and 2,000 acre-feet of leased water for augmentation of base flows in the Yampa River. [c]Fish passages were constructed and are being operated at the following diversion dams: Redlands Water and Power Company, Gunnison River; Grand Valley Irrigation Company, Price-Stubb Diversion, and Grand Valley Project, upper Colorado River; and Cudei (diversion dam removed), Hogback, and Public Service Company of New Mexico, San Juan River. Endangered fish now have access to an additional 52 miles of critical habitat on the upper Colorado River and fish access has been restored to an additional 36 miles of critical habitat on the San Juan River. [d]Fish screens were constructed and are being operated in the Redlands Water and Power Company, Grand Valley Irrigation Company, and Grand Valley Project diversion canals. [e]Fish screens to prevent escapement of nonnative fish were installed and are being operated at outlets to Highline Lake (which connects to the upper Colorado River), Elkhead Reservoir on Elkhead Creek (tributary to the Yampa River), and the Ute Indian Tribe's Elders Pond (which connects to the Duchesne River.