

Upper Colorado River Endangered Fish Recovery Program
and
San Juan River Basin Recovery Implementation Program

Program Highlights

2002-2003

Program Highlights 2002-2003 is an annual publication of the Upper Colorado River Endangered Fish Recovery Program and the San Juan River Basin Recovery Implementation Program. These programs are cooperative partnerships involving public, private, and tribal agencies and interests dedicated to recovering endangered fishes while water development proceeds in compliance with Federal and State laws. This document is not a publication of the U.S. Department of the Interior or its agencies.



Responses to Severe Drought Define Cooperative Nature of Recovery Programs

Ongoing severe drought in the Upper Colorado River Basin in 2002 clearly demonstrated the cooperative nature of the Upper Colorado River Endangered Fish Recovery Program. Water and power interests, and local, State and Federal agencies worked together to meet the needs of people and endangered fish. Measures to conserve water included:

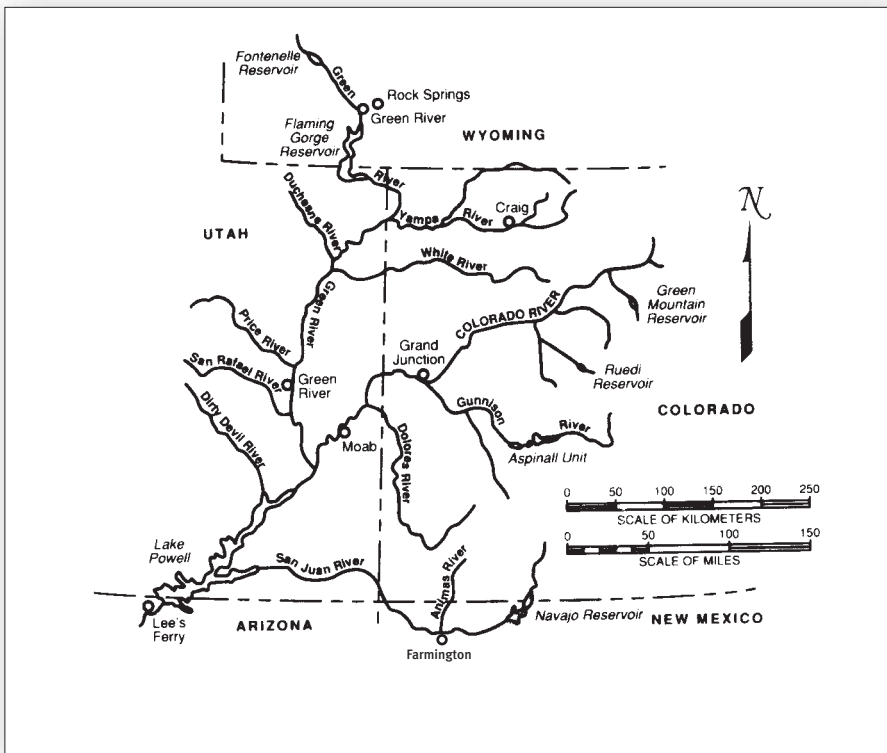
- ◆ Maintaining constant coordination among water users, the U.S. Fish and Wildlife Service (Service) and the U.S. Bureau of Reclamation to identify the greatest water needs at any specific time and adjusting flows to meet those high priority needs.
- ◆ Operating checks at the Government Highline Canal which provided a benefit to irrigators. This demonstrated that improving the efficiency of irrigation systems is an effective method for water conservation.
- ◆ Adjusting operation of the fish ladder at the Redlands Diversion Dam to conserve water while still allowing fish passage.
- ◆ Working with the Service to identify lower flow targets for the fish that would still provide habitat and keep the river channel wet during extreme drought conditions.

- ◆ Maintaining minimum summer through winter seasonal releases from Flaming Gorge Dam on the Green River to benefit endangered fish and tailwater trout fisheries.

The drought also continues to impact water users in the San Juan River Basin. Releases from Navajo Dam to the San Juan River totaled 483,900 acre-feet in 2002 (60 percent of the average release since 1991). The San Juan River Recovery Implementation Program began discussions in July 2002 on how to address the drought situation and its possible impacts to the endangered fish. On October 31, 2002, Navajo Dam releases were reduced from 500 cubic feet per second (cfs) to 350 cfs to conserve water.

Water users, including San Juan Program participants, are exploring how to share a possible water shortage in 2003. The main focus is reducing water deliveries to all stakeholders, including the endangered species.

Both Recovery Programs recognize that continued cooperation must occur in 2003 as current precipitation patterns indicate another year of extreme drought.



Upper Colorado River Basin

Geographic Scope

The Upper Colorado River Endangered Fish Recovery Program covers the Colorado River and its tributaries in Colorado, Utah, and Wyoming.

The San Juan River Basin Recovery Implementation Program covers the San Juan River and its tributaries in Colorado, Utah, and New Mexico.

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Requested FY 2004 Congressional Appropriations

Participants in the Upper Colorado River Endangered Fish Recovery Program and the San Juan River Basin Recovery Implementation Program request the support of Congress for funding included in the President's recommended Fiscal Year 2004 budget:

Fish and Wildlife Service Funding

Upper Colorado River Endangered Fish Recovery Program

- ◆ **\$700,000** in Region 6's "recovery" funds
- ◆ **\$444,000** for operation and maintenance of Ouray National Fish Hatchery

San Juan River Basin Recovery Implementation Program

- ◆ **\$165,000** in Region 2's "recovery" funds

Bureau of Reclamation Funding

- ◆ **\$6,915,000** in "Endangered Species Recovery Implementation Program" for the Upper Colorado Region. (**\$5,479,000** for Upper Colorado River; **\$851,000** for San Juan River Basin; **\$50,000** for Water and Energy Management and Development; and **\$535,000** for Fish and Wildlife Management and Development)

Details of these requests follow.

Fish and Wildlife Service Budget

1. **Fish and Wildlife Service funds for the Upper Colorado River Endangered Fish Recovery Program (\$700,000 requested in "recovery" funds).**

Projects to be funded are:

- ◆ **Fish and Wildlife Service program management:**
Funding covers salaries and expenses of Program Director and staff.
- ◆ **Monitoring achievement of recovery goals:**
This activity supports Service participation in estimating the abundance of fish populations, evaluating stocking, and monitoring fish and habitat response to recovery actions. Monitoring is key to tracking progress toward meeting the downlisting and delisting criteria of the recovery goals.
- ◆ **Data management:** The Service compiles all fish data obtained through the Recovery Program in computerized form to facilitate management and analysis. This includes maintaining the overall database, summarizing data, and maintaining an inventory of all tagged fish.

2. **Fish and Wildlife Service funds for operation of the Ouray National Fish Hatchery (\$444,000 requested for fish hatchery operation and annual maintenance).**

The Upper Colorado River Endangered Fish Recovery Program requests continued Congressional allocation of \$444,000 in appropriated base operation and maintenance funds ("Fisheries Activity; Hatchery O&M Subactivity") to support the current operation of the Service's Ouray National Fish Hatchery in Utah for Fiscal Year 2004.

3. **Fish and Wildlife Service funding for the San Juan River Basin Recovery Implementation Program (\$165,000 requested in "recovery" funds).**

Projects to be funded are:

- ◆ **Fish and Wildlife Service program management:**
Funding covers salary and associated expenses for the Program Coordinator and Assistant. In addition, funding supports the Service's expenses in implementing and overseeing actions of the San Juan Program.

Bureau of Reclamation Budget

1. Bureau of Reclamation funds for the Upper Colorado River Endangered Fish Recovery and San Juan River Basin Recovery Implementation Programs.

Participants of the Upper Colorado River and San Juan River Basin Recovery Programs request Congressional support for **\$6,915,000** for FY 2004 in “Endangered Species Recovery Implementation Program” directed to the Bureau of Reclamation’s Upper Colorado Region. This amount would provide the Upper Colorado River Endangered Fish Recovery Program with **\$5,479,000**; the San Juan River Basin Recovery Implementation Program with **\$851,000**; **\$50,000** for Water and Energy Management and Development; and **\$535,000** for Fish and Wildlife Management and Development. The **\$5,479,000** supported by participants in the programs would be used for water acquisition, construction of fish passages and screens, reservoir enlargement, and floodplain restoration as described below:

Upper Colorado River Endangered Fish Recovery Program

Projects to be funded are:

- ◆ **Fish Passage:** Funds will be used to restore fish passage at the Grand Valley Project and Price-Stubbs diversion dams on the Colorado River. Fish passage will provide the razorback sucker and Colorado pikeminnow fish species with access to an additional 50 miles of historic habitat and will support expanded populations to achieve recovery goals.
- ◆ **Water acquisition:** A pumping plant will be constructed at Highline Lake in western Colorado to pump water from the lake to the Highline Canal to meet peak irrigation demands. During periods of low demand, water is spilled from the canal into the lake. This will reduce irrigation diversions. The water savings will result in improved habitat conditions for endangered fish in the Colorado River.
- ◆ **Yampa River Management Plan:** The Recovery Program has agreed to partially fund a proposed enlargement of Elkhead Reservoir in northwest Colorado to provide late-summer flows needed to recover the endangered fish. Funds also will likely be needed to design and install a fish barrier at Elkhead Reservoir to prevent nonnative fish from escaping into the Yampa River.
- ◆ **Floodplain restoration:** Funds are needed to continue land acquisition, levee removal, and other floodplain restoration activities at high-priority sites. Restoring these floodplains is especially important for the razorback sucker and will also benefit a variety of wetland-dependent wildlife.

- ◆ **Canal screening:** Funds are needed to design and construct a fish screen at the Redlands Canal on the Gunnison River to prevent endangered fish from being drawn out of the river and into the canal. Adult endangered fish use the habitat above the diversion. Funds are also needed to construct a fish screen at the Grand Valley Project on the Colorado River to prevent fish from being trapped in the irrigation canal and the power plant intakes.

San Juan River Basin Recovery Implementation Program

Projects to be funded are:

- ◆ **Fish Passage:** Funds will be used to design a fish passage at the Arizona Public Service Weir.
- ◆ **Floodplain restoration:** Funds will be used to initiate floodplain restoration for razorback sucker.



Construction is slated to begin in 2004 on a fish passage for the Grand Valley Project Diversion Dam near Grand Junction, Colorado.



A fish passage structure at the Public Service Company of New Mexico Weir will be completed in 2003. Fiscal Year 2004 funds will be used to design a fish passage at the Arizona Public Service Weir.

Long-term Funding Authorization

President Bush Signed Public Law 107-375 on December 19, 2002, Extending the San Juan River and Upper Colorado River Recovery Programs' Construction Authorities.

The success of both Recovery Programs depends on obtaining sufficient funds to implement recovery actions such as those identified in the Upper Colorado River Endangered Fish Recovery Action Plan. To meet these funding needs, Public Law 106-392 was signed on October 30, 2000, authorizing the U.S. Bureau of Reclamation (USBR) to provide cost-sharing for capital construction projects for the Upper Colorado River and San Juan River Recovery Programs. Non-Federal cost-sharing funds are provided by the upper basin States (Colorado, New Mexico, Utah, and Wyoming); and by hydroelectric power and water users.

This Act was amended by Public Law 107-375, signed on December 19, 2002. This extends the authorization period for the Secretary of Interior to complete the capital construction projects (and to expend non-Federal funds) from 2005 to 2008 for the Upper Colorado River Program and from 2007 to 2008 for the San Juan River Program.

Pursuant to these laws, capital construction costs are not to exceed \$100 million: \$82 million for the Upper Colorado River Recovery Program and \$18 million for the San Juan River Recovery Implementation Program.

Established Cost-sharing of Capital Construction for the Upper Colorado and San Juan Recovery Programs

Upper Colorado Recovery Program	\$ 82 million
San Juan Recovery Program	\$ 18 million
	Total \$ 100 million

Sources of Revenue (Cost-sharing)

Federal	Non-Federal
Congress: \$ 46 million	Power Revs: \$ 17 million
	States: \$ 17 million
	Water & Power: \$ 20 million
Total \$ 46 million	Total \$ 54 million

President Bush Signs Capital Funding Extension

President Bush signed Public Law 107-375 on December 19, 2002, extending the San Juan River and Upper Colorado River Recovery Programs' construction authority from 2005 to 2008. The extension allows the programs additional time to construct fish passages at diversion structures, install fish screens, construct reservoir modifications (Elkhead), and finalize other construction projects that are critical to the recovery of endangered Colorado River fishes.

State Funding

The four participating States and power revenues each are contributing \$17 million for these projects. P.L. 106-392 recognizes the contribution of \$20 million in expenditures that have been incurred for replacement power purchases due to modified operations at the Colorado River Storage Project (CRSP) hydropower facilities and the capital cost associated with water storage in Wolford Mountain Reservoir (Colorado) to benefit the endangered fish.

Cost-sharing by the Four Participating States

		Upper Colorado River Rec. Program	San Juan Rec. Program
Colorado	\$ 9.146 M	\$ 8.065 M	\$ 1.081 M
Utah	3.422 M	3.422 M	0.000 M
New Mexico	2.744 M	0.000 M	2.744 M
Wyoming	1.688 M	1.688 M	0.000 M
	Total \$ 17.000 M	Total \$ 13.175 M	Total \$ 3.825 M

Power Revenues

The Secretary of Energy, acting through the Western Area Power Administration (WAPA), is authorized to use up to \$17 million of CRSP power revenues for capital projects. These revenues are treated as a non-Federal contribution, but are reimbursable costs assigned to power for repayment under section 5 of the CRSP Act. PL 106-392 requires that the power revenue and State funding match on a rolling 2-year basis. Power revenue funding may come from a loan provided to WAPA from the Colorado Water Conservation Board Construction Fund.

Base Program Funding Stabilized

PL 106-392 also provides up to \$6 million per year (adjusted annually for inflation) of CRSP hydropower revenues for base (non-capital) funding for the two Recovery Programs. Through 2011, annual "base" funding of up to \$4 million may be provided for the Upper Colorado Program and up to \$2 million may be provided for the San Juan Program. After 2011, power revenues may be used only to operate and maintain the capital projects and for monitoring, unless Congress authorizes additional funding.

Cooperative Agreement Signed to Extend Upper Basin Recovery Program

Recovery Program Continues to Garner Bipartisan Support

In December 2001, Department of the Interior Secretary Gale Norton, Colorado Governor Bill Owens, Utah Governor Mike Leavitt, Wyoming Governor Jim Geringer, and Western Area Power Administration Administrator Mike Hacsckaylo signed a 10-year extension of the cooperative agreement, extending the Upper Colorado River Endangered Fish Recovery Program through September 30, 2013.

“Today’s signing ceremony signifies how far we’ve come in successfully implementing cooperative programs for conservation,” Secretary Norton said. “When this program began 12 years ago, it was the first of its kind. Never before had such a mix of State and Federal organizations come together formally to work side-by-side with private water and power developers and environmental organizations.”

“I commend all of the program’s partners for developing creative and effective ways to meet the dual goals of endangered species recovery and water development.”

Yolietta Cook



National and State leaders sign an extension of the Recovery Program’s Cooperative Agreement at Colorado’s State Capitol in December 2001. Pictured from left: Western Area Power Administration Administrator Mike Hacsckaylo, Wyoming Governor Jim Geringer, Colorado Governor Bill Owens, and Department of the Interior Secretary Gale Norton. Utah Governor Mike Leavitt signed the extension at a separate time.

Interior Secretaries Praise Programs

Secretary of the Interior Bruce Babbitt addressed the ongoing conduct of the Recovery Programs in his remarks at the Colorado River Water Users Association Annual Meeting in Las Vegas, Nevada on December 14, 2000:

“The restoration of endangered fish populations in the Upper Basin is an ongoing success story. I mention this because as a successful cooperative environmental recovery program, it could provide a pattern for both funding and collaboration on the Multi-Species Conservation Program (MSCP) in the lower basin.” (Excerpted)

Secretary of the Interior Gale Norton similarly noted the Recovery Programs’ efforts in her speech at the Colorado River Water Users Association Annual Meeting in Las Vegas, Nevada on December 16, 2002:

...“We also take very seriously the requirements of the Federal Endangered Species Act in the course of managing the Colorado River. Yes, the Act has caused conflict in other river basins, but we are working very hard with our partners in the Colorado River basin to find success instead of conflict. The good news is there are Endangered Species Act success stories that demonstrate the value of consultation and cooperation...”

“The first example of success is the Upper Colorado River Endangered Fish Recovery Program...”

“I cite this as an excellent example of planning ahead to meet the demands of the Endangered Species Act. All jurisdictions need to take Endangered Species Act problems seriously and to factor them into their long-term planning. Upper Colorado River users came to grips with this more than a dozen years ago and that planning is beginning to show success today...”

“This can be a model that the Klamath and Rio Grande and other basins can follow...” (Excerpted)

Endangered Fish Status

Upper Colorado River and San Juan River Recovery Programs

Humpback Chub

- ◆ Populations appear healthy and stable in areas of the Upper Colorado River Basin where they occur. The population at Black Rocks and Westwater Canyon, near the Colorado-Utah border, is estimated at about 2,900 adults. The Yampa Canyon and Cataract Canyon populations are small, consisting of about 500 adults. Preliminary analysis has provided an estimate of the population in Desolation/Gray Canyons of about 1,700 adults.
- ◆ The State of Colorado downlisted the humpback chub from “State-endangered” to “State-threatened” in 1998.
- ◆ Current adult populations in the Green and Colorado rivers meet or exceed the downlisting demographic criteria specified in the recovery goals approved on August 1, 2002 (see page 15).

Bonytail

- ◆ This is the rarest of the four endangered Colorado River fish species. Before stocking began, bonytail had virtually disappeared in the Upper Colorado River Basin.
- ◆ More than 229,000 bonytail have been raised and stocked in the Colorado and Green rivers. The Utah Department of Wildlife Resources stocked 33,700, 5-to 6-inch bonytail and the Colorado Division of Wildlife stocked over 13,400 bonytail greater than 8 inches into the middle Green River in the fall of 2002.
- ◆ Some stocked fish have been recaptured, indicating at least short-term survival.

Colorado Pikeminnow

- ◆ Since 1991, the number of adult Colorado pikeminnow in the Colorado River has tripled. The current population estimate is 700 adults. Recent estimates in the Green River system place the number of adults at about 5,000.
- ◆ The State of Colorado downlisted the Colorado pikeminnow from “State-endangered” to “State-threatened” in 1998.
- ◆ Current adult numbers in the Colorado and Green rivers meet or exceed the downlisting demographic criteria in the published recovery goals (see page 15).
- ◆ In the San Juan River, the wild Colorado pikeminnow population likely consists of less than 50 adults.
- ◆ In 2001, 148 adult Colorado pikeminnow were stocked in the San Juan River. In addition, approximately 200,000 fingerlings were stocked in the fall of 2002. Approximately 300,000 additional fingerlings are scheduled to be stocked in the fall of 2003.

Razorback Sucker

- ◆ Because of its scarcity, this species is the highest priority for hatchery raising and stocking.
- ◆ Wild populations in the Upper Colorado River Basin continue to decline.
- ◆ Biologists estimate the Green River population has declined from 500 to less than 100 adults since the early 1990s. The remaining wild adults comprise a remnant spawning population. This loss is attributed to the aging population of the fish and indicates the importance of successful spawning by hatchery-raised and stocked fish to survival of this species.
- ◆ Razorback sucker larvae were discovered for the first time in the Gunnison River in 2002, confirming that hatchery-raised fish are successfully spawning.
- ◆ Larval razorback sucker have been found in the San Juan River every year since 1998, indicating the stocked fish are spawning successfully.
- ◆ Nearly 63,000 subadult razorback sucker have been raised and stocked in the Upper Colorado River Basin to date. In 2002, the Recovery Program stocked over 500,000 larvae into the Green River and 12,900 subadults into the Colorado River.
- ◆ Some fish in the Green River have been recaptured at spawning sites in reproductive condition, indicating that they are becoming part of the wild population.
- ◆ In the San Juan River, almost 7,000 adult and subadult razorback sucker have been stocked since 1994. Stocking will continue in 2003.

Program Overview

Upper Colorado River Endangered Fish Recovery Program

The Upper Colorado River Endangered Fish Recovery Program is a cooperative partnership created to recover the endangered humpback chub, bonytail, Colorado pikeminnow, and razorback sucker while water development proceeds in accordance with Federal and State laws. The Recovery Program was initiated in 1988 when a cooperative agreement was signed by the Governors of Colorado, Utah, and Wyoming; the Secretary of the Interior; and the Administrator of Western Area Power Administration.



Bob Burdick, FWS, Grand Junction

U.S. Fish and Wildlife Service Biological Technician Rick Smaniotto was amazed to see this huge Colorado pikeminnow pass through the Redlands Fish Ladder on July 3, 2002. The fish weighed 16.8 pounds and measured 37 inches.

Program Partners

- ◆ Colorado River Energy Distributors Association
- ◆ Colorado Water Congress
- ◆ Land and Water Fund of the Rockies
- ◆ National Park Service
- ◆ State of Colorado
- ◆ State of Utah
- ◆ State of Wyoming
- ◆ The Nature Conservancy
- ◆ U.S. Bureau of Reclamation
- ◆ U.S. Fish and Wildlife Service
- ◆ Utah Water Users Association
- ◆ Western Area Power Administration
- ◆ Wyoming Water Association

Program Elements

- ◆ **Habitat management** includes developing river flow recommendations, identifying and acquiring instream

flows, changing operations of Federal dams, and operating other reservoirs in a coordinated manner to benefit the endangered fishes.

- ◆ **Habitat development** includes restoring floodplain/wetland habitats, constructing fish passageways around dams and installing fish screens to prevent endangered fish from becoming trapped in diversion canals.
- ◆ **Nonnative species and sportfishing** entails 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.
- ◆ **Endangered fish propagation and stocking** involves establishing facilities to hold adult broodstock to prevent extinction of these rare fish and maintain their genetic resources; developing growout ponds; propagating endangered fish for stocking; conducting research to improve survival of endangered fish; and restoring populations.
- ◆ **Research, monitoring, and data management** provides critically important information about what the endangered fishes need to survive, grow, and reproduce in the wild. Efforts include compiling data on the numbers, sizes, and locations of endangered fishes and developing population estimates to monitor progress toward achieving demographic criteria specified in the recovery goals. (see page 15).



U.S. Fish and Wildlife Service

U.S. Fish and Wildlife Service Biologist Steve Severson oversees producing an average of 300,000 to 400,000 larval and 15,000, 10-to 12-inch razorback sucker each year at the Ouray National Fish Hatchery in northeast Utah.

San Juan River Basin Recovery Implementation Program

The San Juan River Basin Recovery Implementation Program was established in 1992 to protect and recover Colorado pikeminnow and razorback sucker in the San Juan River Basin while water development proceeds in compliance with all applicable Federal and State laws, including fulfillment of Federal trust responsibilities to several Native American tribes. It is anticipated that actions taken under this Recovery Program to recover the Colorado pikeminnow and razorback sucker will also provide benefits to other native fishes in the basin and prevent them from becoming endangered in the future.

Program Partners

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

Program Elements

- ◆ **Protection of genetic integrity and management and augmentation of populations** involves completing genetics management and augmentation plans, establishing refugia with stock taken from the wild, and augmenting wild populations of endangered fish species.
- ◆ **Protection, management, and augmentation of habitat** involves identifying important reaches of the San Juan River for different life stages of the endangered fish by mapping current conditions, determining relationships between flow and habitat, and determining flow needs. In addition, augmentation of habitat includes providing fish passage around migration barriers.
- ◆ **Water quality protection and enhancement** involves monitoring existing water quality conditions, evaluating historic information, identifying types and sources of contamination, investigating changes in water chemistry, and pursuing actions to diminish or eliminate water quality problems that limit recovery.

- ◆ **Interactions between native and nonnative fish species** involves determining the distribution and abundance of nonnative species, identifying and characterizing habitats used by the nonnative fish, discontinuing stocking of nonnative species in areas where endangered fish occur, and control of nonnatives through removal efforts.
- ◆ **Monitoring and data management** is necessary to evaluate status and trends of endangered fish species as well as other native and nonnative species to assure the Recovery Program's overall success in achieving recovery goals (see page 15).



U.S. Fish and Wildlife Service Biologist Dale Ryden holds adult channel catfish taken from the San Juan River. The San Juan River Recovery Program is stepping up efforts to remove this nonnative species and recover the endangered fishes.



Biologists conduct research on the San Juan River to identify the types of fish species, their numbers and sizes. Understanding the fish community will help biologists identify actions needed to recover the endangered fish.

U.S. Fish and Wildlife Service

U.S. Fish and Wildlife Service

Highlights of Recovery Program Accomplishments

Habitat Management

Upper Colorado River Endangered Fish Recovery Program

- ◆ Since 1988, the Service has consulted on 707 water projects depleting approximately 1,719,273 acre-feet per year in the upper basin using the Recovery Program as a reasonable and prudent alternative. The Service simplified the Section 7 consultation process, and waives depletion charges for water projects that deplete less than 100 acre-feet of water per year.
- ◆ Recovery Program partners have agreed to fund a proposed 5,000 acre-foot enlargement of Elkhead Reservoir in northwest Colorado. The expansion will make water available to augment late-summer flows for endangered fish and to sustain future growth in the Yampa Valley.
- ◆ Automated gate control equipment installed at the Government Highline Canal in 2002 improved the efficiency of canal checks and will provide about 28,000 acre-feet of additional water for endangered fish in average water years.
- ◆ The Recovery Program has initiated development of a strategic plan to guide habitat research and monitoring, to refine flow recommendations and to ensure that adequate habitat is provided in accordance with the recovery goals (see page 15.)
- ◆ A research study continued in 2002 to develop a temperature model for the Gunnison River to explore ways to improve fish habitat.



Automated gate control equipment installed at the Government Highline Canal in 2002 improved efficiency and will provide about 28,000 acre-feet of water for endangered fish.

San Juan River Basin Recovery Implementation Program

- ◆ The Bureau of Reclamation proposes to permanently operate Navajo Dam and Reservoir to implement flow recommendations on the San Juan River. A draft environmental impact statement (EIS) on Navajo operations to implement the flow recommendations was released and comments have been received. The final EIS is scheduled for release in the fall of 2003.
- ◆ The Recovery Program is evaluating the need for habitat development for all life stages of the endangered fishes.



The Bureau of Reclamation proposes to operate Navajo Dam and Reservoir to implement flow recommendations on the San Juan River. A final environmental impact statement is scheduled for release in the fall of 2003.

Burt Ives

U.S. Bureau of Reclamation

Habitat Development

Upper Colorado River Endangered Fish Recovery Program

- ◆ A total of 59 Colorado pikeminnow, 6 razorback sucker and 48,000 other native fish have used the 350-foot-long fish ladder at the Redlands Diversion Dam on the Gunnison River since it was completed in 1996. This was the second year razorback sucker used the ladder, reconfirming that this species can negotiate this type of passageway.
- ◆ Work will begin in 2003 to design a fish screen at the Redlands Canal to prevent endangered fish from being swept into the canal. The project will be completed in 2005.
- ◆ The Recovery Program installed a fish screen on the Grand Valley Irrigation Company canal on the Colorado River near Palisade, Colorado. Operation of the screen was suspended in early June 2002 as river flows receded to their lowest level in recorded history to allow continued diversion of water by the irrigation company.
- ◆ Construction is slated to begin in 2003 on a fish passage and screen for the Grand Valley Project Diversion Dam and

in 2004 on a fish passage at the Price-Stubbs Diversion Dam on the Colorado River in western Colorado. Upon completion, the passages will provide endangered fish with access to an additional 50 miles of historic habitat.

- ◆ Floodplain/wetland habitat has been improved at five Bureau of Land Management sites on the Green River, three sites at Ouray National Wildlife Refuge, two sites on the Colorado River near Grand Junction and at the Escalante State Wildlife Area on the Gunnison River.

San Juan River Basin Recovery Implementation Program

- ◆ Flow regimes to restore native fish habitat are being implemented.
- ◆ In 2001, fish passage at the Hogback Diversion Dam was completed and the Cudei Diversion structure was removed. Construction of the fish passage at the Public Service Company of New Mexico Weir will be completed in 2003. Fiscal Year 2004 funds will be used to design a fish passage at the Arizona Public Service Weir.

Nonnative Species, Sportfishing, and Public Information/Involvement

Upper Colorado River Endangered Fish Recovery Program

- ◆ To date, the Utah Division of Wildlife Resources, Colorado Division of Wildlife and the Service have removed more than 27,300 nonnative channel catfish; 23,800 nonnative sunfish and bass; and 319,500 nonnative minnows from rivers in the Upper Colorado River Basin.
- ◆ In 2002, a total of 538 northern pike were removed from the Yampa River in northwest Colorado. Most of the fish were transferred to nearby public fishing areas. Biologists removed 42 northern pike from the Green River in Utah. Uncharacteristically low water conditions made it difficult to collect and remove fish.
- ◆ The Northern Ute Indian Tribe dedicated a fishing pond for tribal elders. The Recovery Program worked with the Tribe to install a fish screen and trap at the pond's outlet to ensure that sportfish stocked in the pond do not escape into tributaries of the Green River where they could adversely impact endangered fish.
- ◆ In 2003, the Recovery Program will expand its efforts to remove channel catfish, northern pike and smallmouth bass from the Colorado River and its tributaries to reduce impacts on endangered fishes.

- ◆ An educational exhibit featuring an aquarium with razorback sucker was completed at The Nature Conservancy's historic Carpenter Ranch in northwest Colorado. Local students help take care of the fish.
- ◆ The States of Colorado and Utah featured exhibits of endangered fish at their 2002 State fairs, helping raise awareness of these unique fish species.
- ◆ The Recovery Program holds public meetings and produces a wide range of educational materials, including newsletters, fact sheets, interpretive exhibits, and a website.

(continued on next page)



Debbie Felker

Antonio "AJ" Kanip (center) and other members of the Red Spirit Musical Group perform a song at the dedication of a newly constructed elders pond on the Uintah and Ouray Indian Reservation in northeast Utah.

San Juan River Basin Recovery Implementation Program

- ◆ In the San Juan River system, nonnative fish are an impediment to the survival of native fish. Channel catfish are being removed. Resources are also focused on the removal of striped bass as they enter the river from Lake Powell during spring runoff.
- ◆ Nonnative fish removal efforts continue to increase. During 1998-2002, more than 35,000 channel catfish and 20,000 common carp were removed from the San Juan River. In the 8 1/2-mile Public Service Company of New Mexico (PNM) Weir to the Hogback stretch of the river, more than 9,800 channel catfish and 7,000 common carp were removed during that same time. The mean size of channel catfish in the Hogback to the PNM Weir reach was reduced from 19 inches in 1999

to 15 inches in 2002. This benefits the endangered fishes by decreasing the number of reproductively active catfish in the system.

- ◆ The Program is working with the Navajo Nation and the State of New Mexico to transplant catfish taken from the San Juan River to local lakes to enhance recreational fishing opportunities.
- ◆ The San Juan River Recovery Basin Implementation Program invites full public participation through public meetings and maintains an updated website.

Recovery Program Web Sites

Upper Colorado River: ColoradoRiverRecovery.fws.gov
San Juan River: southwest.fws.gov/sjrip

Endangered Fish Propagation and Stocking

Upper Colorado River Endangered Fish Recovery Program

- ◆ The Recovery Program funds operations of four hatchery facilities in Colorado and Utah:
 - The Grand Valley Endangered Fish Facility (Grand Junction, Colorado) produced over 51,000 razorback sucker that were placed in growout ponds in 2002 and 12,900, 12-inch razorback sucker were stocked into the Colorado River.
 - The J.W. Mumma Native Aquatic Species Restoration Facility (Alamosa, Colorado) is raising over 69,000 bonytail and 7,300 Colorado pikeminnow for future stocking. Biologists stocked 13,400, 8-inch bonytail from this facility in Colorado waters of the Green River in the fall of 2002.
 - The Wahweap State Fish Hatchery (Big Water, Utah) raised 33,700, 5- to 6-inch bonytail in 2002 that were stocked in the Colorado and Green rivers. The hatchery will produce 15,000 bonytail to stock in the fall of 2003.
 - The Ouray National Fish Hatchery (Ouray, Utah) raised 59,000 razorback sucker for the Green River system. More than 15,000, 12-inch razorback sucker will be stocked in 2003. The others will remain in growout ponds until they reach the appropriate size to stock.
- ◆ The four facilities use off-site, private and public ponds to expand their ability to raise greater numbers of fish. Private citizens, and city and State agencies donate or lease ponds to the Recovery Program.
- ◆ The Recovery Program adopted an integrated stocking plan for Colorado and Utah to expedite reestablishment of razorback sucker and bonytail.

San Juan River Basin Recovery Implementation Program

- ◆ In 2001, new growout ponds were built on Navajo Indian Irrigation Project lands. Razorback sucker were stocked in the ponds in the spring of 2002.
- ◆ To date, 6,975 subadult and adult razorback sucker have been stocked in the San Juan River. Larval razorback sucker found in the river indicate that previously stocked razorback sucker are surviving and spawning.
- ◆ In 2001, 148 adult Colorado pikeminnow were stocked in the San Juan River. Approximately 800,000 larval Colorado pikeminnow were stocked prior to 2002. The Program stocked about 200,000 Colorado pikeminnow fingerlings in October 2002.
- ◆ The San Juan River Biology Committee is finalizing genetics and augmentation plans for both the Colorado pikeminnow and the razorback sucker. These plans will establish the number of fish that will be stocked to help achieve the recovery goals.

BIA-NIP



U.S. Fish and Wildlife Service Biologist Jason Davis stocks young Colorado pikeminnow in the San Juan River. The fish were raised at Dexter National Fish Hatchery and Technology Center in New Mexico.

Research, Monitoring, and Data Management

Upper Colorado River Endangered Fish Recovery Program

- ◆ Collections of young razorback sucker and Colorado pikeminnow in the Green and Yampa rivers were used as indicators to help manage releases from Flaming Gorge Dam. Seasonal releases from the dam are patterned to enhance habitat conditions for endangered fishes.
- ◆ Cooperative efforts by State, Federal, and private agencies resulted in reliable abundance estimates for endangered fish populations. Results are used to measure progress toward achieving recovery criteria for self-sustaining populations (see page 15).
- ◆ Biologists found eight razorback sucker larvae for the first time in the Gunnison River during the spring of 2002. This confirms that hatchery-raised fish are successfully spawning in the Gunnison River.
- ◆ Research completed in 2002 demonstrated that floodplain wetlands play a key role in the life cycle of the razorback sucker. Studies showed that dried depression floodplains “reset” by removing all fish. When the wetlands re-flood, razorback sucker and bonytail have a better chance to survive because they are growing among lower numbers of nonnative fishes.
- ◆ The Interagency Standardized Monitoring Program (ISMP) conducted from 1986 through 2000 measured trends in relative abundance of adult Colorado pikeminnow in the Upper Colorado River Basin. The final 2002 ISMP summary report concluded that the Colorado pikeminnow population increased during the 15-year study period. ISMP was replaced by mark-recapture population estimates to determine progress toward achieving recovery goals.

San Juan River Basin Recovery Implementation Program

- ◆ Research activities continue with the completion of the population model, water temperature analysis and modeling, characterization of the spawning bar being used by razorback sucker, and determination of the occurrence of hybridization of razorback sucker with other sucker species.
- ◆ The Program continues to monitor the fish community in the San Juan River, drifting larval fish, channel morphology, and water temperature and quality.

- ◆ The Program is integrating monitoring data collected during 1999 through 2001 into a final report slated for completion in 2003. The results will be used to evaluate and update flow recommendations as well as the standardized monitoring and long-range plans. The monitoring program documents the response of the physical and biological components to the recommended flow regime.
- ◆ During 2002-2003, a peer review panel will help the Biology Committee integrate research findings and monitoring data to assess response of the endangered fishes and habitats to Recovery Program activities, including flow recommendation implementation, stocking, and nonnative species control.
- ◆ The Hydrology Committee, established in 2001, reviews and evaluates hydrology-related information. The Committee is responsible for reviewing the current hydrology model and providing recommendations for improvements. The Committee also evaluates any proposed changes to the operating rules for the San Juan Basin reservoirs.
- ◆ The Bureau of Reclamation, in coordination with the Hydrology Committee, is developing the Third Generation Hydrology Model scheduled for completion in 2003.



Biologists use a net to capture fish in an outdoor laboratory set up in a 20-acre floodplain wetland along the Green River in northwest Utah. Pictured from left are: Brent Sheffer, Utah Division of Wildlife Resources (UDWR); Mike Caldwell, U.S. Fish and Wildlife Service; and Ben Williams, UDWR.

Recovery Goals Provide Measures of Success

The U.S. Fish and Wildlife Service approved final, basin-wide recovery goals for the endangered humpback chub, bonytail, Colorado pikeminnow, and razorback sucker on August 1, 2002. The recovery goals were developed over the past three years with collaborative input from public, private and tribal stakeholders and scientists from the Colorado River Basin.

The Upper Colorado River Endangered Fish Recovery Program and the San Juan River Basin Recovery Implementation Program will use this important information to further focus and expand their aggressive efforts to bring the four fish species back from the brink of extinction. The Recovery Programs will stock hatchery-produced fish, control nonnative fishes, and improve habitat to maintain or restore populations. Consistent with the governing documents of the Upper Colorado River and San Juan River Recovery Programs, the recovery goals adhere to State and Federal laws related to the Colorado River System (“Law of the River”), including State water law, interstate river compacts, and Federal trust responsibilities to American Indian tribes.

“This is a landmark day (August 1st signing) for the Fish and Wildlife Service and cooperative efforts to recover the four endangered fish species,” said Dr. Ralph Morgenweck, Director, Mountain-Prairie Region. “The recovery goals are based on the best available science and provide reasonable assurances that recovery can be achieved and the species protected into the future. It is my hope that

these goals will serve as a model for recovery of other listed species.”

The recovery goals for the endangered fishes in the Upper and Lower Colorado River Basins identify site-specific management actions to minimize or remove threats and specify the numbers of fish that comprise self-sustaining populations (see table below). Downlisting of the fishes from “endangered” to “threatened” and removing the species from Endangered Species Act protection (delisting) will be considered by the U.S. Fish and Wildlife Service once the necessary management actions are achieved and the fish populations reach the required demographic and genetic self-sustaining standards.

The recovery goals are comprehensive, biologically and legally sound, and provide specific criteria for recovery. Research-based adaptive management, however, may lead to future revisions of the recovery criteria. The recovery goals and the status of the species will be formally reviewed at least every five years. Monitoring of populations will help guide this process, and population estimates will serve as a starting point against which progress toward recovery is measured.

More information is available at:
mountain-prairie.fws.gov/ea/infopackets or by calling
 303-969-7322, ext. 225.

DEMOGRAPHIC CRITERIA FOR RECOVERY	
DOWNLISTING	DELISTING
<p>Over a 5-year monitoring period:</p> <ul style="list-style-type: none"> • Maintain the six populations (“no net loss”) • One core population in upper basin > 2,100 adults • One core population in lower basin > 2,100 adults 	<p style="text-align: center;">Humpback Chub</p> <p>For 3 years beyond downlisting:</p> <ul style="list-style-type: none"> • Maintain the six populations (“no net loss”) • Two core populations in upper basin > 2,100 adults • One core population in lower basin > 2,100 adults
<p>Over a 5-year monitoring period:</p> <ul style="list-style-type: none"> • Maintain reestablished populations in Green River and upper Colorado River subbasins, each > 4,400 adults • Maintain established genetic refuge of adults in lower basin • Maintain two reestablished populations in lower basin, each > 4,400 adults 	<p style="text-align: center;">Bonytail</p> <p>For 3 years beyond downlisting:</p> <ul style="list-style-type: none"> • Maintain populations in Green River and upper Colorado River subbasins, each > 4,400 adults • Maintain genetic refuge of adults in lower basin • Maintain two populations in lower basin, each > 4,400 adults
<p>Over a 5-year monitoring period:</p> <ul style="list-style-type: none"> • Maintain the upper basin metapopulation • Maintain populations in Green River and upper Colorado River subbasins (“no net loss”) • Green River subbasin population > 2,600 adults • Upper Colorado River subbasin population > 700 adults • Establish 1,000 age 5+ subadults in San Juan River 	<p style="text-align: center;">Colorado Pikeminnow</p> <p>For 7 years beyond downlisting:</p> <ul style="list-style-type: none"> • Maintain the upper basin metapopulation • Maintain populations in Green River and upper Colorado River subbasins (“no net loss”) • Green River subbasin population > 2,600 adults • Upper Colorado River subbasin population > 1,000 adults OR Upper Colorado River subbasin population > 700 adults and San Juan River population > 800 adults
<p>Over a 5-year monitoring period:</p> <ul style="list-style-type: none"> • Maintain reestablished populations in Green River subbasin and EITHER in upper Colorado River subbasin or in San Juan River, each > 5,800 adults • Maintain established genetic refuge of adults in Lake Mohave • Maintain two reestablished populations in lower basin, each > 5,800 adults 	<p style="text-align: center;">Razorback Sucker</p> <p>For 3 years beyond downlisting:</p> <ul style="list-style-type: none"> • Maintain populations in Green River subbasin and EITHER in upper Colorado River subbasin or in San Juan River, each > 5,800 adults • Maintain genetic refuge of adults in Lake Mohave • Maintain two populations in lower basin, each > 5,800 adults

Water Project Consultations

Under Section 7 of the Endangered Species Act within the Upper Colorado River & San Juan River Recovery Programs

Table 1
Upper Colorado River Endangered Fish Recovery Program
Summary of Section 7 Consultations

(1/1988 through 12/31/2002)

State	Number of Consultations	Historic Depletions	New Depletions	Totals	
		Acre-feet/yr	Acre-feet/yr	Acre-feet/yr	Depletion Fees ⁴
Colorado ¹	359	1,032,290.94	139,620.32	1,171,911.26	\$ 440,844
Utah	38	421,867.74	66,844.03	488,711.77	\$ 454,866
Wyoming	72	40,966.09	17,684.26	58,650.35	\$ 168,575
Regional ^{2,3}	238	(Regional)	(Regional)	0.00	0
Totals	707	1,495,124.77	224,148.61	1,719,273.38	\$ 1,064,285

¹ Includes the depletions under the 15-Mile Reach Programmatic Biological Opinion, 12/20/99, on 1 million AF/yr of historic depletions (through September 30, 1995) and up to 120,000 AF/yr of new depletions (since September 30, 1995) in the Colorado River above the confluence with the Gunnison River. The total includes 127 projects under the PBO plus 80 other Colorado projects.

² Pre-9/30/97 regional consultations not assigned to individual states.

³ Depletion charges waived by USFWS for consultations on depletions of less than 100 AF/yr.

⁴ Pre-FY 1990: \$10/AF; FY 2001: \$14.75/AF; FY 2002: \$15.25/AF.

Table 2
San Juan River Basin Recovery Implementation Program
Summary of Section 7 Consultations

State	Historic Depletions	New Depletions	Totals
	Acre-feet/yr	Acre-feet/yr	Acre-feet/yr
New Mexico ^{1,2}	594,218.00	3,000.00	597,218.00
Colorado ²	239,615.00	2,199.00	241,814.00
Utah and Arizona ²	7,160.00	0.00	7,160.00
Totals	841,993.00	5,199.00	846,192.00

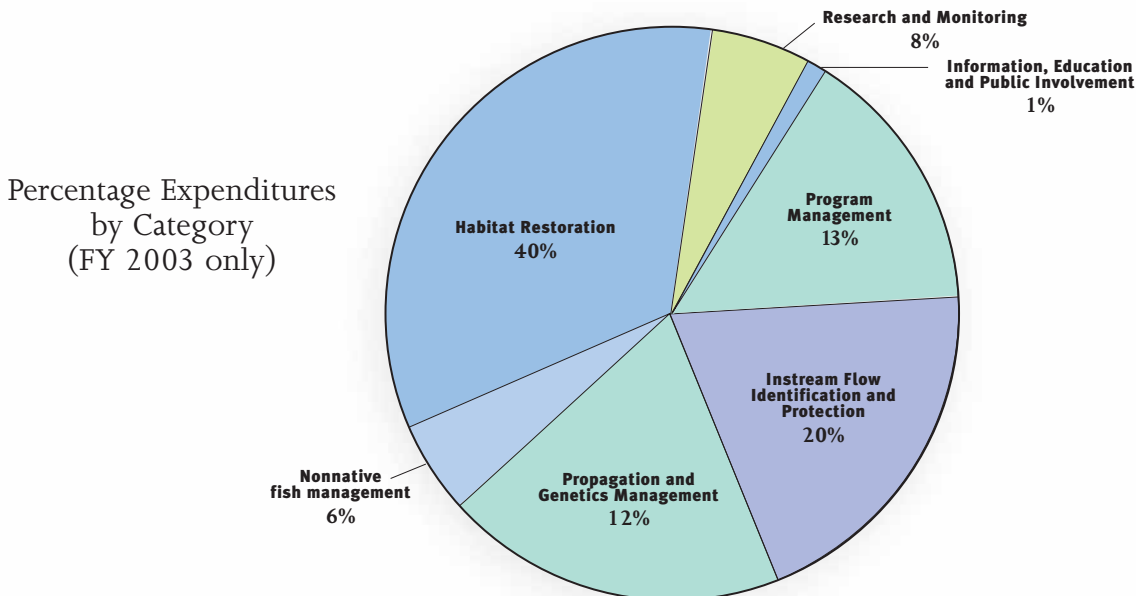
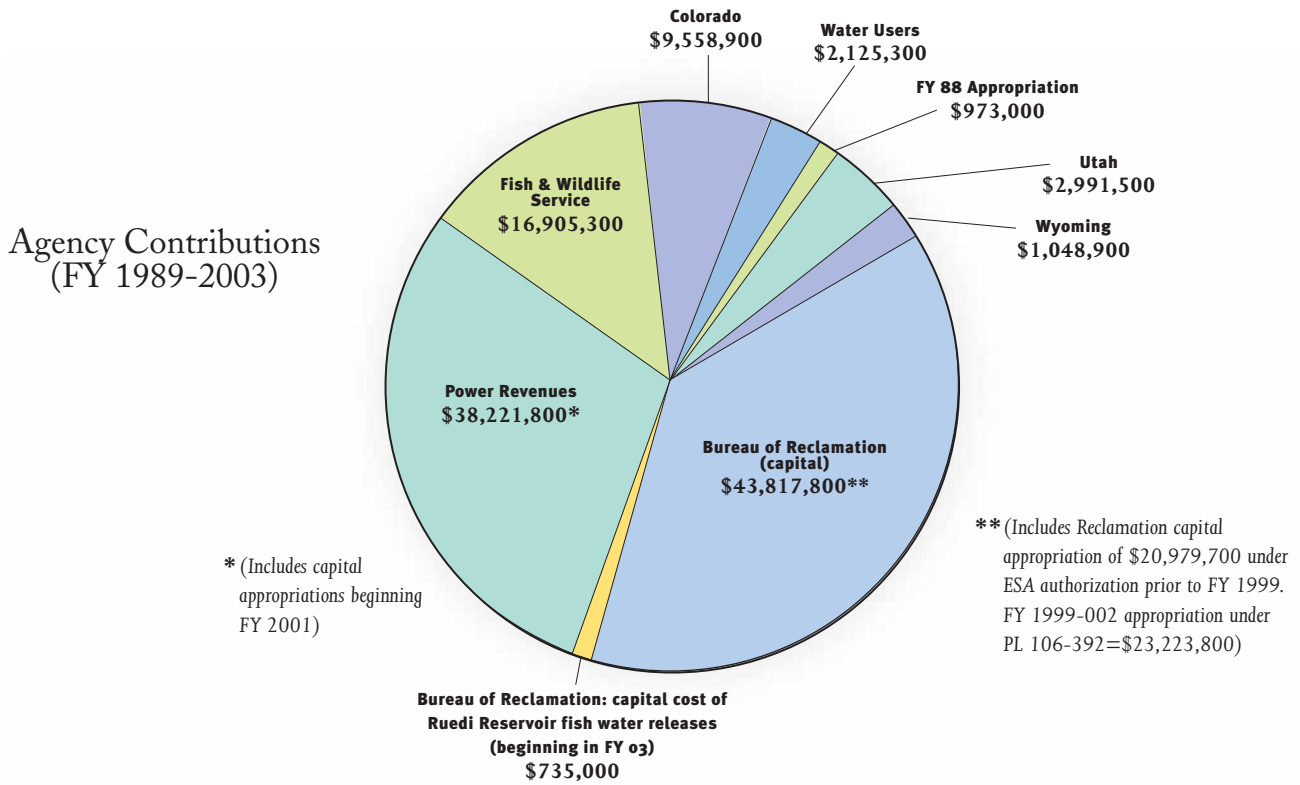
¹ New depletions includes minor depletions (less than 100 AF).

² Source: 2002 Red Mesa Reservoir Enlargement Project Biological Opinion.

Expenditures

Upper Colorado River Endangered Fish Recovery Program

Total Expenditures = \$116,377,500 (FY 1989-2003)

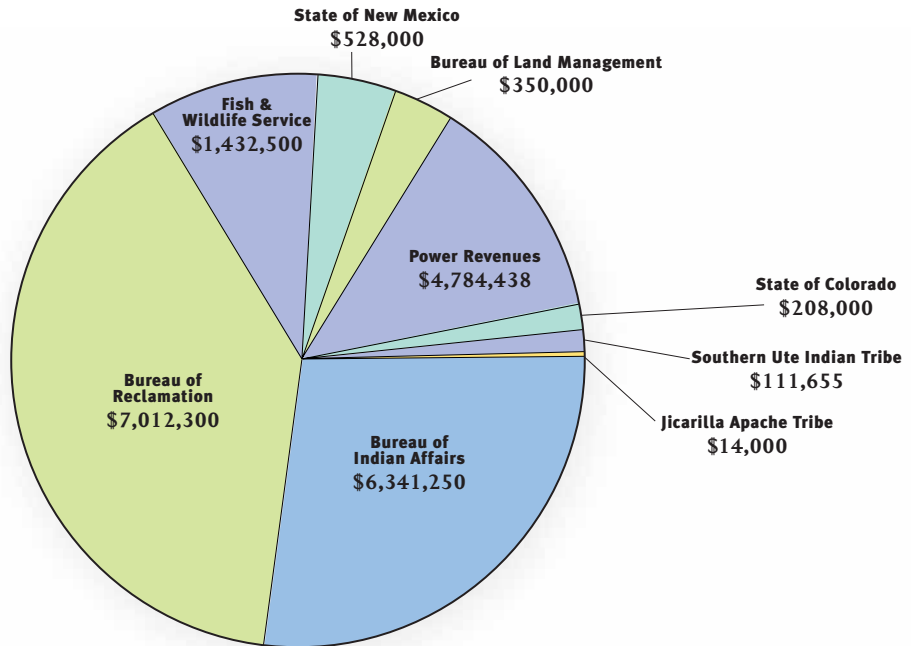


Expenditures

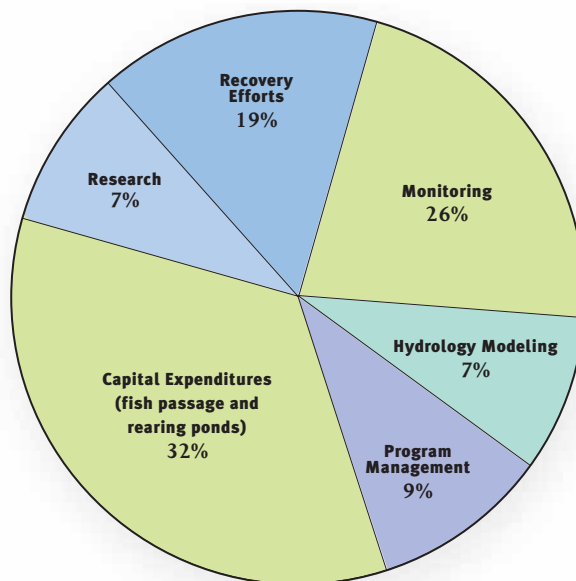
San Juan River Basin Recovery Implementation Program

Total Expenditures = \$20,782,143 (FY 1992-2003)
 (Not including in-kind contributions)

Agency Contributions
 (FY 1992-2003)



Percentage Expenditures
 by Category
 (FY 2003 only)



Brothers Relive Childhood Memories of Once Abundant Fish

Nearly 70 years ago, brothers Dale and Max Stewart tied a strong piece of string to a flexible branch cut from a tamarisk tree and cast their line into the Green River near Vernal, Utah, in search of enough large fish to feed their family and friends during the Depression.

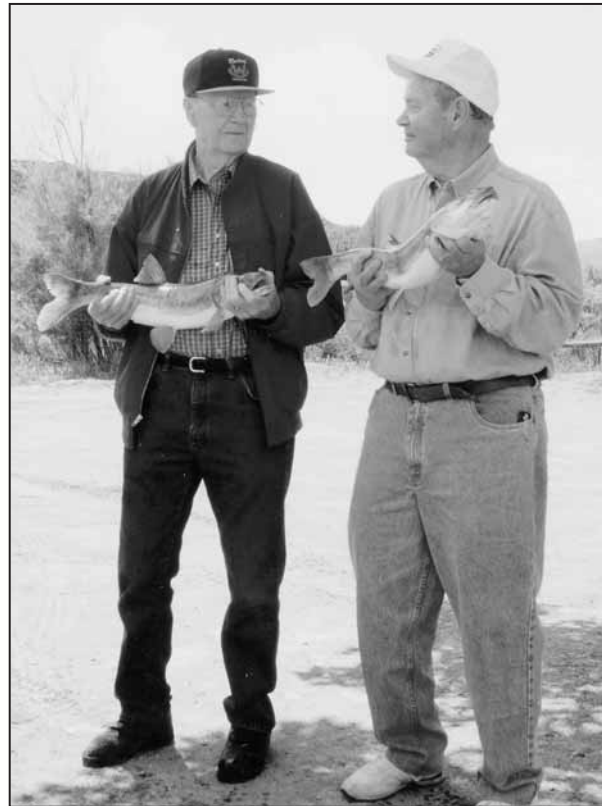
At the age of 8, Max caught a 25-pound Colorado pikeminnow (called squawfish or whitefish in those days) that was nearly as big as he was. Now at the age of 73, Max recalls a summer fish fry along the river.

“We’d enjoy large quantities of fish accompanied by homemade bread, green beans from the garden and other good food,” he said. “To me, the Colorado pikeminnow tasted somewhere between salmon and halibut.”

Biologists are beginning to see the return of the Colorado pikeminnow in areas where the Stewart brothers fished as children, offering hope that these once popular sportfish can again become abundant in the Upper Colorado River Basin.

In June 2002, the Recovery Program took Max and Dale to the White River about 60 miles southeast of their hometown. There the brothers had an opportunity to help U.S. Fish and Wildlife Service biologists capture Colorado pikeminnow.

“We knew there was an effort taking place to restore this species,” Max said, “but we didn’t think we’d live long enough to ever see them again. It was a thrill to see them. We hope that someday people will have as much fun fishing for them as Dale and I have.”



Mark Fuller, Fish and Wildlife Service

Courtesy of Max and Dale Stewart



The Stewart brothers enjoy fishing for Colorado pikeminnow (then called Colorado squawfish or whitefish) during the Depression in the 1930s. Pictured with their catch from the Green River near Vernal, Utah, are Dale, 12 (left); Max 4 (in the wagon); and Glen, 16.

The Stewart brothers relived childhood memories of catching Colorado pikeminnow in June 2002 when they helped U.S. Fish and Wildlife Service biologists locate these now endangered fish. Dale, 81, (left) and Max, 73, said they hope that someday the species will no longer be endangered and others can have as much fun catching and eating them as they did when they were children.

Preserving the West’s Heritage

The Upper Colorado River and San Juan River Basin Recovery Programs are national models of cost-effective, public, private, and tribal partnerships working to recover endangered species while water development continues in accordance with Federal and State law and interstate compacts. The Programs’ efforts will help ensure that the Colorado pikeminnow, razorback sucker, humpback chub, and bonytail remain an important part of the West’s heritage.