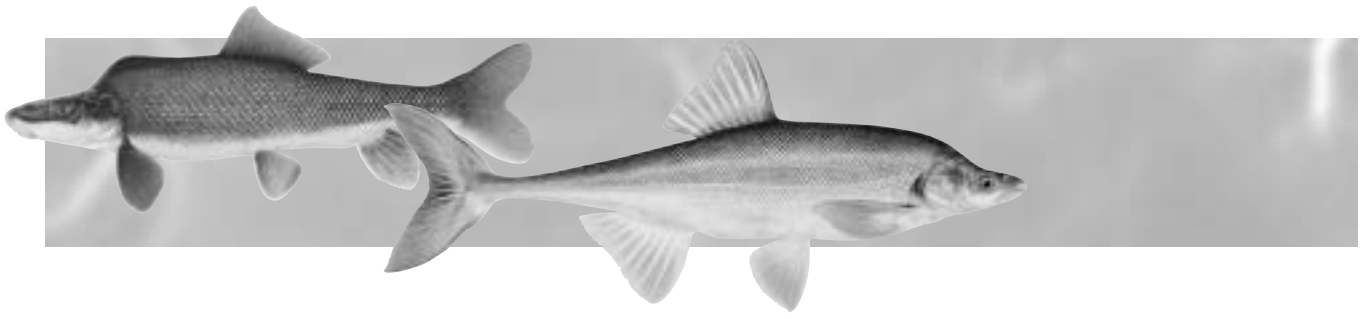
Upper Colorado River Endangered Fish Recovery Program

and

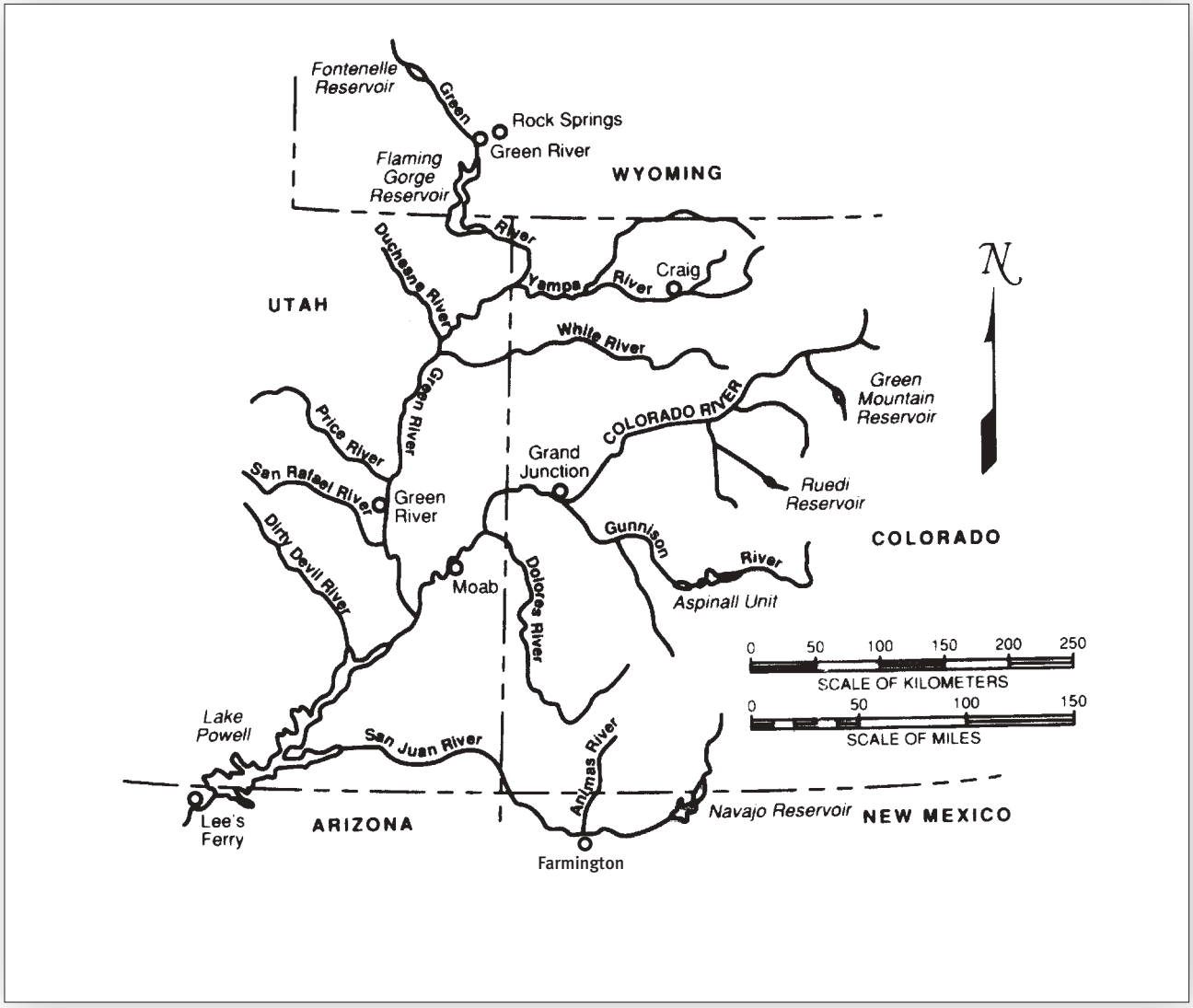
San Juan River Basin Recovery Implementation Program

Program Highlights 2003-2004

Program Highlights 2003-2004 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.



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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Endangered Fish Recovery Programs Continue to Garner Bipartisan Support

The Upper Colorado River Endangered Fish Recovery Program and the San Juan River Basin Recovery Implementation Program continue to be models of cost-effective, collaborative efforts to recover endangered fishes while managing water to serve human needs. The ongoing progress toward these programs' success has been recognized by State and Federal leaders. Recovery Program participants are pleased to provide the following excerpts by political leaders familiar with these programs' efforts:

Department of the Interior

"Meeting the needs of endangered species while respecting the legal rights of water users has been a priority of the Department of the Interior under this Administration. In the Upper Basin, we have had success building multi-stakeholder programs to address the needs of listed species. The Upper Colorado River Endangered Fish Recovery Program [is an example] of how a broad group of stakeholders - including federal, state, tribal, and private interests - can work together to improve water management on the Colorado [River]." (Excerpted)
Secretary of the Interior Gale Norton, December 11, 2003
Colorado River Water Users Association Annual Meeting
Las Vegas, Nevada

Department of the Interior Secretary Gale Norton frequently cites the Upper Colorado River Endangered Fish Recovery Program as an example of a successful effort to recover endangered species while water development continues.

"The restoration of endangered fish populations in the Upper Basin is an ongoing success story." (Excerpted)
Secretary of the Interior Bruce Babbitt, December 14, 2000
Colorado River Water Users Association Annual Meeting
Las Vegas, Nevada

COLORADO

"Since 1988, the Endangered Fish Recovery Programs...have proved to be the means to resolve endangered species conflicts, promote species recovery, and allow ongoing development and use of Compact-apportioned water resources throughout the West. Last year all interests successfully negotiated program recovery goals [that] provide a clear, succinct roadmap to Program participants...for recovery, downlisting and delisting of the endangered fish under the Endangered Species Act."

Bill Owens
Governor, State of Colorado

UTAH

"The ongoing drought in Utah, as well as the rest of the western United States, underscores the importance of these programs as they allow water users in Utah to both maintain existing water use and develop new supplies while protecting the environment."

Michael O. Leavitt
Former Governor, State of Utah

NEW MEXICO

"During the 106th Congress, Public Law 106-392 was enacted with strong bipartisan support. Public Law 106-392 authorizes the Federal government to provide up to $46 million of cost sharing for the implementation of capital projects for the two recovery programs...Each of the four participating states has appropriated non-Federal cost sharing funding. These facts demonstrate the strong commitment and effective partnerships that are present in both of these ongoing programs."

Bill Richardson
Governor, State of New Mexico

WYOMING

"These ongoing, highly successful, cooperative programs... reflect the proper approach to providing endangered species conservation and recovery within the framework of the existing Federal Endangered Species Act, while concurrently resolving critical conflicts between endangered species recovery and the development and use of Compact-apportioned water resources in the Upper Colorado River Basin region of the Intermountain West."

Dave Freudenthal
Governor, State of Wyoming

Proactive Measures Exemplify Win-Win Solutions for Water Management

Wise management of water resources in the arid West is always important, particularly in times of drought. Sustained drought can have serious impacts on people and wildlife. Water-year 2002 was the driest in more than 100 years in parts of the Upper Colorado River Basin, and drought's grip on the basin remained strong in 2003 for the fourth consecutive year. History tells us the effects of drought are persistent and may influence the Colorado River System for several more years.

U.S. Bureau of Reclamation

The fish ladder at the Redlands Diversion Dam on the Gunnison River is operated to share water shortages while providing fish passage.

The endangered fish recovery programs in the Upper Colorado River and San Juan River Basins are responding to the challenge of water management by working cooperatively with and among local, State, Federal, and tribal agencies to meet the needs of people and endangered fish. The programs continue to implement proactive and innovative measures that exemplify win-win solutions between competing human and environmental demands for water. A key to success is coordination among stakeholders to identify the greatest water needs at any specific time and adjust flows to meet those high-priority needs. Examples of recently implemented measures are:

- The Grand Valley Project canal system in western Colorado was retrofitted with canal checks and automation, which reduced irrigation diversions by 16% or 45,000 acre-feet in 2002 and 12% or 33,000 acre-feet in 2003. These improvements are tied to water releases from the Historical Users Pool in Green Mountain Reservoir, which the Managing Entities Group oversees. This coordinated process plays a major role in managing water resources to meet human and endangered fish needs.

Colorado State Parks

An agreement to share water shortages in Navajo Reservoir and the San Juan River prevented what could have been catastrophic impacts for all water users, including the endangered fishes, during the drought of 2003.

- The fish ladder at the Redlands Diversion Dam on the Gunnison River in western Colorado is operated to share water shortages while providing fish passage.
- Flows for the endangered fishes are recommended by the U.S. Fish and Wildlife Service that will provide sufficient habitat for survival during drought conditions. Contracts and leases are in place to provide supplemental water as needed during late-summer low flows.
- Upper Colorado River Recovery Program partners agreed to fund a portion of the proposed enlargement of Elkhead Reservoir in northwest Colorado. This enlargement will provide late-summer water for endangered fishes in the Yampa River and partially meet future human water demands in the Yampa River Basin.
- Recommendations to share water shortages in Navajo Reservoir and the San Juan River in 2003 were developed and implemented by the New Mexico State Engineer, U.S. Bureau of Reclamation, and U.S. Fish and Wildlife Service. This "shortage-sharing agreement" and its accompanying cooperation prevented what could have been catastrophic impacts for all water users, including the endangered fishes. With the storage level in Navajo Reservoir at an all-time low and forecasted below-average snowpack this winter, a similar water-sharing agreement is being developed for 2004. Reservoir releases have been reduced to conserve as much water as possible during winter.

Management of water to provide necessary habitat for the endangered fishes is an integral part of recovery efforts. Although many gains have been made, both Recovery Programs recognize that more needs to be done and they continue to seek innovative solutions to meet water needs.

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. These parties signed a 10-year extension of the agreement in 2001, extending the Recovery Program through September 30, 2013.

Quent Bradwisch, Utah Division of Wildlife Resources

Kellen Keisling shows off an endangered bonytail he helped raise at the Utah Division of Wildlife Resource's Wahweap Fish Hatchery.

Program Partners

- State of Colorado
- State of Utah
- State of Wyoming
- Colorado River Energy Distributors Association
- Colorado Water Congress
- National Park Service
- The Nature Conservancy
- U.S. Bureau of Reclamation
- U.S. Fish and Wildlife Service
- Utah Water Users Association
- Western Resource Advocates
- 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 18).

George Smith, U.S. Fish and Wildlife Service

Work crews took advantage of late-summer flows on the Colorado River to begin construction of a fish passage structure at the Government Highline Diversion Dam. Slated for completion in August 2004, the structure will provide endangered fish access to critical habitat that has been blocked since the 14-foot-high dam was finished in 1917.

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 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

- State of Colorado
- State of New Mexico
- Jicarilla Apache Nation
- Navajo Nation
- Southern Ute Indian Tribe
- Ute Mountain Ute Tribe
- 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 includes 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 18).

U.S. Bureau of Indian Affairs-NIIP

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.

Ernie Teller, U.S. Bureau of Indian Affairs

Albert Lapahie, a biologist with the Navajo Nation, operates the new fish passage at the Public Service Company of New Mexico Weir. Four razorback suckers have used the passage during its first six months of operation.

Programs are Authorized in Federal Law

Enactment of Public Laws 106-392 and 107-375 Provide Construction Authorities and Ongoing O&M Funding for the San Juan River and Upper Colorado River Recovery Programs.

Continuing success of both Recovery Programs depends on obtaining sufficient funding to implement recovery actions such as those identified in the Upper Colorado River Endangered Fish Recovery Action Plan. Public Law (P.L.) 106-392, signed on October 30, 2000, authorizes 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 water users and Colorado River Storage Project (CRSP) power users.

P.L. 107-375, signed on December 19, 2002, 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 this Federal authorization, the Programs' capital construction costs are not to exceed $100 million: $82 million for the Upper Colorado River Program and $18 million for the San Juan River Program. P.L. 106-392 recognizes the contribution of $20 million that has been incurred as a portion of replacement power costs due to modified operations at the CRSP power facilities and the capital cost of water storage in Wolford Mountain Reservoir (Colorado) to benefit the endangered fishes.

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

Base Program (O&M) Funding

P.L. 106-392 also provides up to $6 million per year (adjusted annually for inflation) of CRSP power 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, CRSP power revenues may be used only to operate and maintain the capital projects and for monitoring, unless Congress authorizes additional funding. In the event there are insufficient funds in the Upper Colorado Basin Fund to meet Western Area Power Administration (WAPA) and USBR obligations under the CRSP Act of 1956 for a three-year period, WAPA and the USBR shall request appropriations to meet base funding obligations.

Capital Funding

The four participating States and CRSP power revenues each are contributing $17 million for these projects.

State Funding

The States' ongoing financial participation in these efforts has been funded through several unique and creative means. In Colorado, HB 98-1006 created the Native Species Conservation Trust Fund, through which an annual "Species Conservation Eligibility List," submitted by the Department of Natural Resources, is approved by a joint resolution of the General Assembly. The New Mexico Legislature has chosen to appropriate funds into the State's "operating reserve," thus making them available at any time and not tied to a specific calendar year. Application of the funds is subject to approval by the New Mexico Interstate Stream Commission.

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

The Wyoming State Legislature appropriated its funding share during its 1998 and 1999 sessions. The Utah State Legislature has pursued a twofold approach by creating in 1997 a restricted Species Protection Account within the General Fund, which receives revenue generated by the Brine Shrimp Royalty Acts' brine shrimp tax and by the dedication in 2000 of 1/16th of one cent of the Utah sales tax to water development projects such as the Upper Colorado River Program.

Power Revenues

The Secretary of Energy, acting through the 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. P.L. 106-392 requires that the power revenue and State funding match on a rolling two-year basis. Power revenue funding may be provided in part from loan(s) provided to WAPA from the Colorado Water Conservation Board's Construction Fund, as permitted by the Programs' Federal authorizations.

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 12/31/2003)

		Historic Depletions	New Depletions	Totals
State	Number of Consultations	Acre-feet/yr	Acre-feet/yr	Acre-feet/yr
Colorado	387	1,037,145.14	139,205.82	1,176,350.96
Utah	38	422,917.82	66,110.95	489,028.77
Wyoming	93	42,089.59	17,184.52	59,274.11
Regional*	238			
Totals	756	1,502,152.55	222,501.29	1,724,653.84

* Depletions included in historic projects.

Table 2

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

	Depletions
State	Acre-feet/yr
New Mexico	610,562
Colorado	216,557
Utah	9,140
Arizona	10,010
Totals	846,269

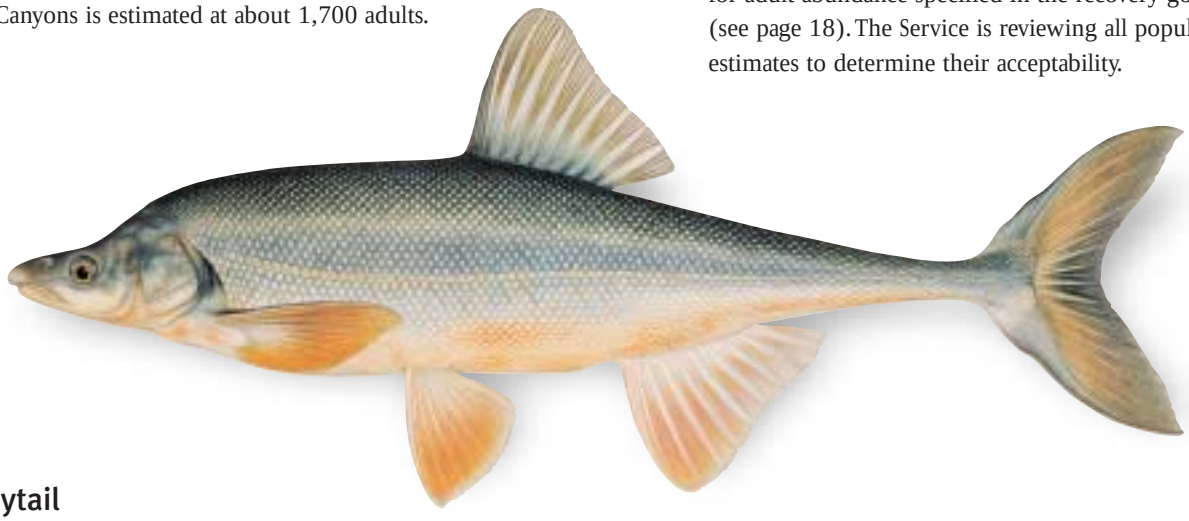
Source: Biological Assessment for Navajo Reservoir Operations, Colorado River Storage Project, Colorado-New Mexico-Utah, July 2003, U.S. Bureau of Reclamation (250/5000 Alternative)

Endangered Fish Status

Upper Colorado River and San Juan River Recovery Programs

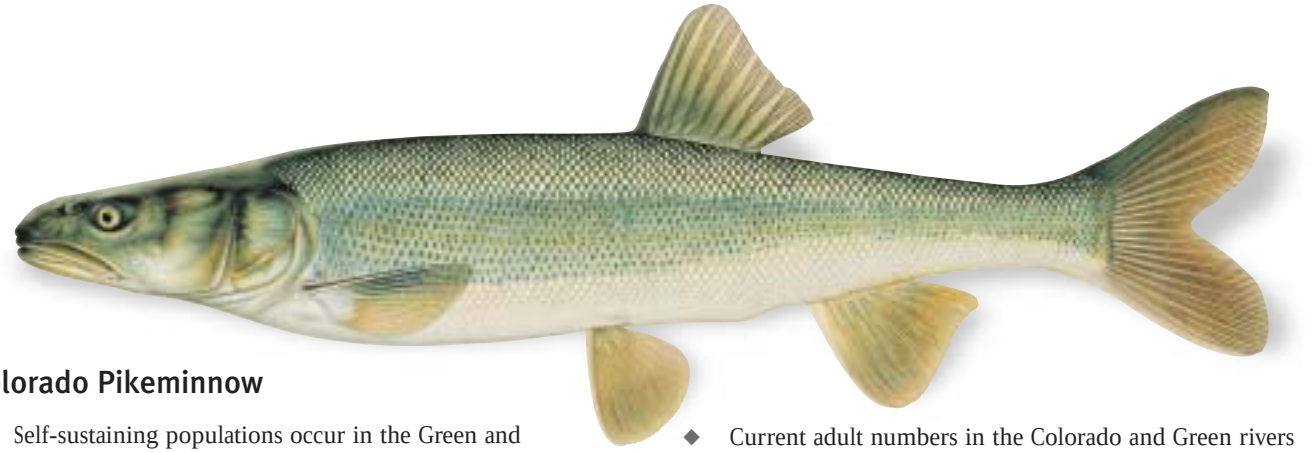
Humpback Chub

- Five self-sustaining populations occur in canyon-bound river reaches of the Upper Colorado River Basin. About 3,000 adults occur in the Black Rocks and Westwater Canyon populations near the Colorado-Utah border. The Yampa Canyon and Cataract Canyon populations are small, each consisting of a few hundred adults. The population in Desolation/Gray Canyons is estimated at about 1,700 adults.
- The State of Colorado downlisted this species from "State-endangered" to "State-threatened" under the State's statute in 1998.
- Current estimates of the upper basin populations appear to meet or exceed the downlisting demographic criteria for adult abundance specified in the recovery goals (see page 18). The Service is reviewing all population estimates to determine their acceptability.



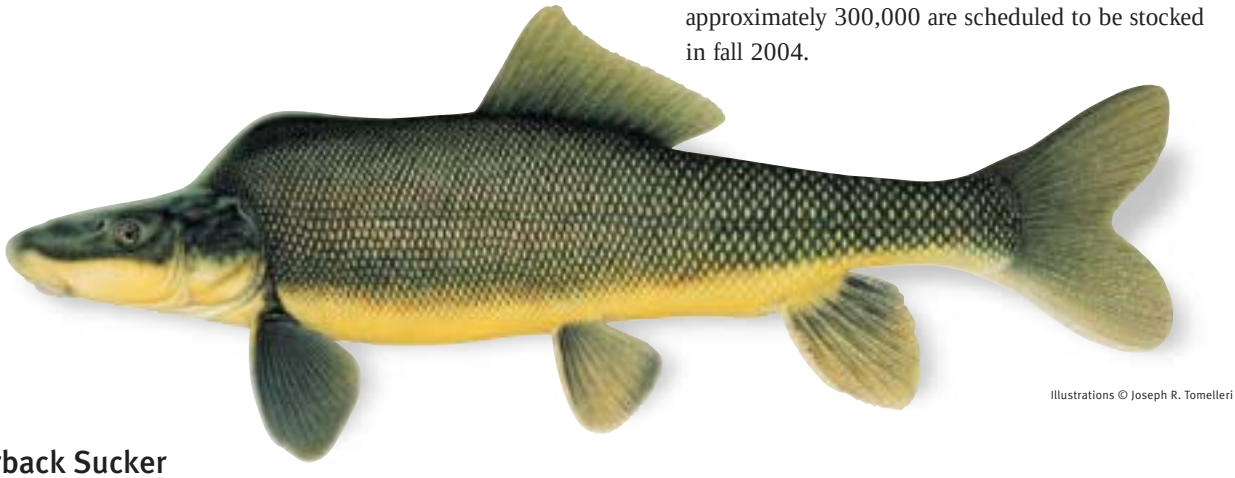
Bonytail

- This is the rarest of the four endangered Colorado River fish species. Before stocking began, the species had essentially disappeared in the Upper Colorado River Basin.
- Stocking efforts continue to reestablish two self-sustaining populations in the upper basin (see recovery goals, page 18).
- More than 239,700 bonytails have been raised and stocked in the Colorado and Green rivers. The Utah Department of Wildlife Resources stocked 12,800 bonytails greater than 6 inches and the Colorado Division of Wildlife stocked about 800 bonytails greater than 8 inches into the middle Green River in fall 2003.
- Stocking has been expanded to place fish into floodplain wetlands where growth and survival may be enhanced.
- Captures of fish raised in the hatchery and stocked in the river system indicate survival in the wild.



Colorado Pikeminnow

- Self-sustaining populations occur in the Green and Colorado rivers of the Upper Colorado River Basin.
- Since 1991, abundance estimates for adult Colorado pikeminnow in the Colorado River have continued to increase; the current population estimate is about 780 adults. Recent estimates in the Green River system place the number of adults at about 5,000.
- The State of Colorado downlisted this species from "State-endangered" to "State-threatened" in 1998.
- Current adult numbers in the Colorado and Green rivers appear to meet or exceed the downlisting demographic criteria in the recovery goals (see page 18). The Service is reviewing all population estimates to determine their acceptability.
- Over 2,000 juvenile Colorado pikeminnow were stocked in the Colorado and Gunnison rivers of western Colorado in fall 2003.
- Stocking efforts continue in the San Juan River to achieve requirements of the recovery goals. About 177,000 juveniles were stocked in October 2003, and approximately 300,000 are scheduled to be stocked in fall 2004.



Illustrations © Joseph R. Tomelleri

Razorback Sucker

- Genetic stocks of wild fish have been secured in hatcheries, and their offspring are being stocked to reestablish or enhance wild populations. Recovery goals require two self-sustaining populations in the upper basin (see page 18).
- Nearly 63,000 subadults have been raised and stocked in the Upper Colorado River Basin to date. In 2003, the Recovery Program stocked over 345,000 larvae into the Green River and over 16,300 subadults into the Upper Colorado River Basin.
- Stocked fish in the Green River have been captured at spawning sites in reproductive condition, indicating that they are becoming part of the wild population.
- Larval razorback suckers were discovered for the first time in the Gunnison River in 2002, confirming that stocked fish are spawning.
- About 7,900 subadults and adults have been stocked in the San Juan River since 1994.
- Larval razorback suckers have been found in the San Juan River every year since 1998 and juveniles were found in 2002 and 2003, confirming that stocked fish are spawning and young are surviving.

Highlights of

Recovery Program Accomplishments

Habitat Management

Upper Colorado River Endangered Fish Recovery Program

- Since 1988, the U.S. Fish and Wildlife Service has consulted on 756 water projects depleting approximately 1,725,000 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.

- A final environmental assessment and programmatic biological opinion (EA/PBO) will be completed in 2004 for the *Management Plan for Endangered Fishes in the Yampa River Basin*. Upon completion of the EA/PBO, the U.S. Fish and Wildlife Service will enter into a cooperative agreement with the Colorado River Water Conservation District and the States of Colorado and Wyoming to implement the plan. The plan describes specific recovery actions intended to compensate for the adverse impacts of current and future depletions.

- The Grand Valley Project canal system in western Colorado was retrofitted with canal checks and automation, which reduced irrigation diversions by 16% or 45,000 acre-feet in 2002 and 12% or 33,000 acre-feet in 2003. These improvements play a major role in managing water resources to meet human and endangered fish needs (see page 5).

Gerry Roehm, U.S. Fish and Wildlife Service

U.S. Fish and Wildlife Service Hydrologist George Smith assisted in development of the Grand Valley check structures which have allowed water users to make more efficient use of limited water resources. "Saved" water is available to increase river flows for the endangered fish.

- 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.

- Final flow recommendations were completed to benefit endangered fishes in the Gunnison, upper Colorado, and Duchesne rivers.

- A strategic plan was completed to prioritize and direct future habitat research and monitoring activities. Recommendations will be used to develop studies starting in 2004.

- An agreement was signed in 2003 to ensure delivery of 10,825 acre-feet per year of water from Ruedi Reservoir to augment river flows in the 15-Mile Reach of the Colorado River through 2012.

- A research study continued in 2003 to develop a temperature model for the Gunnison River to explore ways to improve fish habitat.

San Juan River Basin Recovery Implementation Program

- The U.S. Bureau of Reclamation has altered the timing and magnitude of releases from Navajo Dam to attempt to meet the flow recommendations for the San Juan River that were approved in 1999. A final environmental impact statement and record of decision for full implementation of the flow recommendations are scheduled for release in 2004.

- The Recovery Program is evaluating the need for habitat development for all life stages of the endangered fishes.

Habitat Development

Pat Nelson, Recovery Program

Restoring habitat to serve as a nursery area for razorback suckers and Colorado pikeminnow is an important step toward their recovery.

Upper Colorado River Endangered Fish Recovery Program

- Sixty Colorado pikeminnow, six razorback suckers, one bonytail, and more than 53,000 other native fish have used the ladder at the Redlands Diversion Dam on the Gunnison River since 1996. This confirms that the ladder is successfully helping endangered fish reach 50 miles of historic habitat blocked when the dam was built in 1905.
- The Recovery Program obtained an easement on 451 acres of floodplain habitat on Thunder Ranch near Jensen, Utah. Restoration of a 330-acre wetland on this property will provide important nursery habitat in a key location for young razorback suckers and is expected to greatly contribute toward recovery of the species.
- Habitat restoration was completed at the Unaweep Charolais Ranch near Whitewater, Colorado. The site was designed as a razorback sucker nursery habitat for the lower Gunnison River.
- Information gained from studies on survival of larval razorback suckers and bonytails in the presence of nonnative fishes is being used to determine the amount and type of floodplain habitat needed for recovery.
- Adult bonytails stocked into floodplain habitats in 2003 successfully reproduced. These stocking efforts directly increase endangered fish abundance and also help determine the habitat requirements of the species.
- Installation of fish passages for the Grand Valley Project and Price-Stubb diversion dams on the Colorado River in western Colorado will provide endangered fish access to 50 miles of critical habitat.
- Construction of screens to prevent endangered fish from being swept into the Redlands and Grand Valley Project canals will begin in November 2004 and be completed in 2005.
- Design and installation of a fish screen for the Tusher Wash diversion canal on the Green River in eastern Utah can proceed because of the recent decision by the Utah Supreme Court ending a water-rights dispute.

San Juan River Basin Recovery Implementation Program

- Flow regimes to restore and maintain native fish habitat are being implemented.
- Construction of a 400-foot fish passage structure at the Public Service Company of New Mexico Weir was completed in 2003. Between June and November 2003, 8 Colorado pikeminnow and 4 razorback suckers used the passage. Fiscal Year 2004 funds will be used to design fish passage at the Four Corners Power Plant Weir if it is determined that this is necessary.

Nonnative Species, Sportfishing, and Public Information/Involvement

Upper Colorado River Endangered Fish Recovery Program

- The Recovery Program launched new efforts in 2003 to manage nonnative northern pike, channel catfish, and smallmouth bass to reduce their threat to the endangered fishes. This work will continue in 2004 (see page 19).
- The Recovery Program adopted a policy that addresses the process of identifying and implementing nonnative fish management actions needed to recover the endangered fish. The policy ensures that a more consistent message is included in strategic communication efforts intended to gain agency and public understanding and support for these necessary actions.

Dave Buchanan, The Daily Sentinel

U.S. Fish and Wildlife Service biologists weigh and measure a channel catfish removed from the Colorado River as part of expanded efforts to manage nonnative fishes that threaten the survival of endangered fishes.

- Educational exhibits with aquariums featuring endangered fishes at Dinosaur National Monument in Utah and The Nature Conservancy's historic Carpenter Ranch and the Montrose Pavilion in Colorado give the public firsthand opportunities to observe and learn about these endangered species. The Recovery Program also provides information at major water user conferences in Colorado, Nevada, Utah, and Wyoming.
- The Recovery Program provides hatchery-raised fish and partial funding for a program that enables students to raise endangered fish in their classrooms (see page 20).
- The Recovery Program holds public meetings and produces a wide range of educational materials, including newsletters, fact sheets, interpretive exhibits, and a web site. Considerable favorable press concerning the Recovery Program was observed in 2003 in local and regional newspapers in Colorado and Utah.

Ernie Teller, U.S. Bureau of Indian Affairs

Local students learn to identify native and nonnative fishes by helping biologists sort the day's catch at the newly-constructed fish passage at the Public Service Company of New Mexico Weir on the San Juan River.

San Juan River Basin Recovery Implementation Program

- Efforts to control nonnative fishes have been underway since 1998 and are showing signs of success. Some species, such as channel catfish and striped bass, are being directly controlled, whereas control of other species, such as red shiner, is being attempted through restoration of natural flow regimes and river habitat.
- The Program continues to work with both the Navajo Nation and the State of New Mexico to transplant channel catfish from the San Juan River to area lakes to enhance recreational fishing opportunities. In addition, collaboration with the Southwest Tribal Fisheries Commission in distributing channel catfish to other Tribes and Pueblos within the State of New Mexico will begin in 2004.
- A dedication of the fish passage at the Public Service Company of New Mexico Weir in 2003 started with a traditional Navajo blessing. More than 300 people have visited the site since the dedication, including students from local schools, the Shiprock Boys and Girls Club, and the local Headstart Program.
- The San Juan River Recovery 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 adopted an integrated stocking plan for Colorado and Utah to expedite reestablishment of razorback sucker and bonytail populations.
- The Recovery Program funds operations of four hatchery facilities in Colorado and Utah:
  - Personnel at the Grand Valley Endangered Fish Facility (Grand Junction, Colorado) stocked 5,358 razorback suckers into the Colorado River and 2,364 into the Green River in fall 2003. Fish stocked were 12 inches long or larger. In addition, facility personnel stocked 1,051 Colorado pikeminnow in the Gunnison River near Delta, Colorado, and 1,000 in the Colorado River upstream of DeBeque Canyon during fall 2003.

Debbie Felker, Recovery Program

- The State of Colorado's J.W. Mumma Native Aquatic Species Restoration Facility (Alamosa, Colorado) is raising over 22,000 bonytails and 10,000 Colorado pikeminnow for future stocking. Biologists stocked over 800, 8-inch bonytails in the Colorado River in fall 2003.

J.W. Mumma Native Aquatic Species Restoration Facility Manager Dave Schnoor (left) discusses endangered fish production with Recovery Program Director Bob Muth.

- The State of Utah's Wahweap Fish Hatchery (Big Water, Utah) raised over 12,800 bonytails (greater than 6 inches) in 2003 that were stocked in the Colorado and Green rivers. The hatchery will produce more than 15,000 bonytails to stock in fall 2004.
- The Ouray National Fish Hatchery (Ouray, Utah) continues to raise over 27,000 razorback suckers to stock in the Green River. More than 8,600 razorback suckers (10-12 inches long) were stocked in 2003.

- The four hatchery 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.
- Captures of stocked razorback suckers and bonytails and documentation of razorback sucker reproduction through the collection of larval fish in the Gunnison River demonstrate that stocking efforts are working.

San Juan River Basin Recovery Implementation Program

- The San Juan River Biology Committee finalized genetics and augmentation plans for both the Colorado pikeminnow and the razorback sucker in 2003. These plans outline key specifics for the population augmentation efforts, including the size and number of fish that will be stocked to help achieve the self-sustaining population numbers needed to meet the recovery goals (see page 18).
- To date, about 900 subadult and adult razorback suckers have been stocked in the San Juan River. Larval razorback suckers, which have been found in the river for the last six years, indicate that previously stocked fish are surviving and spawning at two separate locations in the river.
- About 177,000 juvenile Colorado pikeminnow were stocked in October 2003, and approximately 300,000 are scheduled to be stocked in fall 2004.

Research, Monitoring, and Data Management

Upper Colorado River Endangered Fish Recovery Program

- Collections of young razorback suckers and Colorado pikeminnow in the Green and Yampa rivers were used 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 obtaining current and reliable abundance estimates for endangered fish populations. In 2003, mark-recapture population estimates were conducted for populations of Colorado pikeminnow in the Green and Colorado rivers, and for humpback chub in the Yampa, Green, and Colorado rivers. Results are used to measure progress toward achieving recovery criteria for self-sustaining populations (see page 18).
- A computer-interactive key to sucker larvae and early juveniles of the Upper Colorado River Basin was developed and accepted by the Recovery Program to facilitate more accurate identification of specimens in the field.

San Juan River Basin Recovery Implementation Program

- Studies to evaluate the success of Colorado pikeminnow stocking efforts were initiated in 2003 with the intent of determining protocols that will result in higher survival and retention of stocked fish.
- The Recovery Program is integrating monitoring data collected during 1999 through 2001 into a final report slated for completion in 2004. The monitoring program documents the response of the physical and biological components to the observed flow regime. The results will be used to evaluate and update flow recommendations as well as the standardized monitoring and long-range plans.
- During 2004, 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 U.S. Bureau of Reclamation, in coordination with the Hydrology Committee, is developing the Third Generation Hydrology Model scheduled for completion in 2004. The model will allow better evaluation of flows in the San Juan River to benefit the endangered fishes.

Utah Division of Wildlife Resources

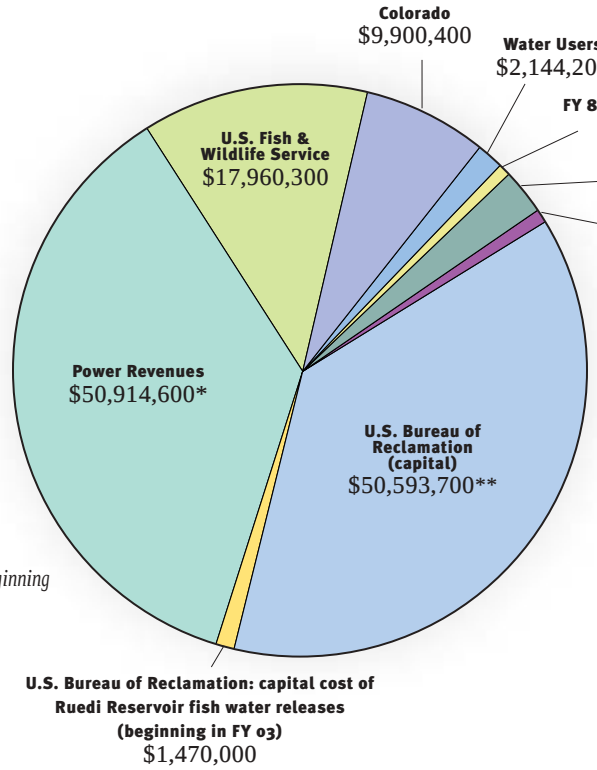
Utah Division of Wildlife Resources biologists gather data on endangered fish populations. This information will be used to help measure progress toward achieving the recovery goals.

Expenditures

Upper Colorado River Endangered Fish Recovery Program

Total Agency Contributions = $138,680,700 (FY 1989-2004)

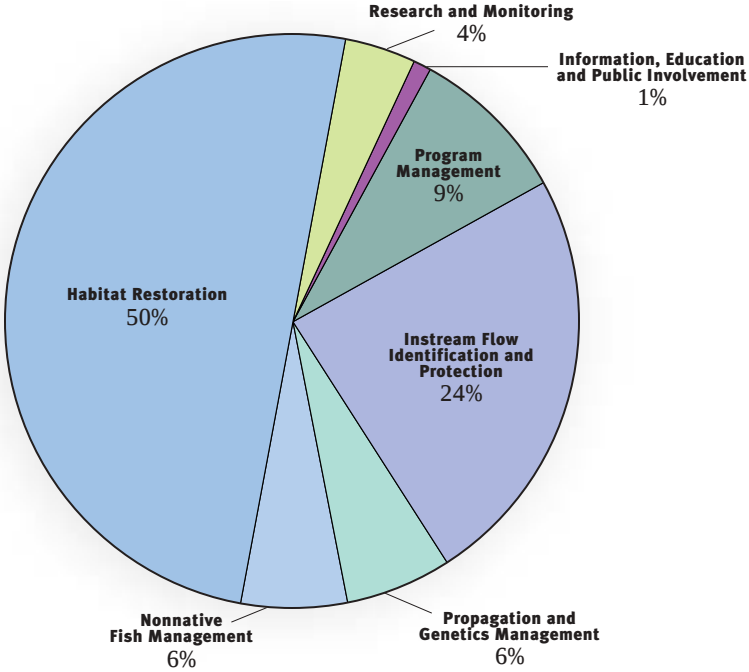
Agency Contributions
(FY 1989-2004)



* *(Includes capital appropriations beginning FY 2001)*

** *(Includes Reclamation capital appropriation of $20,979,700 under ESA authorization prior to FY 1999. FY 1999-2004 appropriation under PL 106-392=$29,614,000)*

Projected Expenditures
by Category
(FY 2004 only)

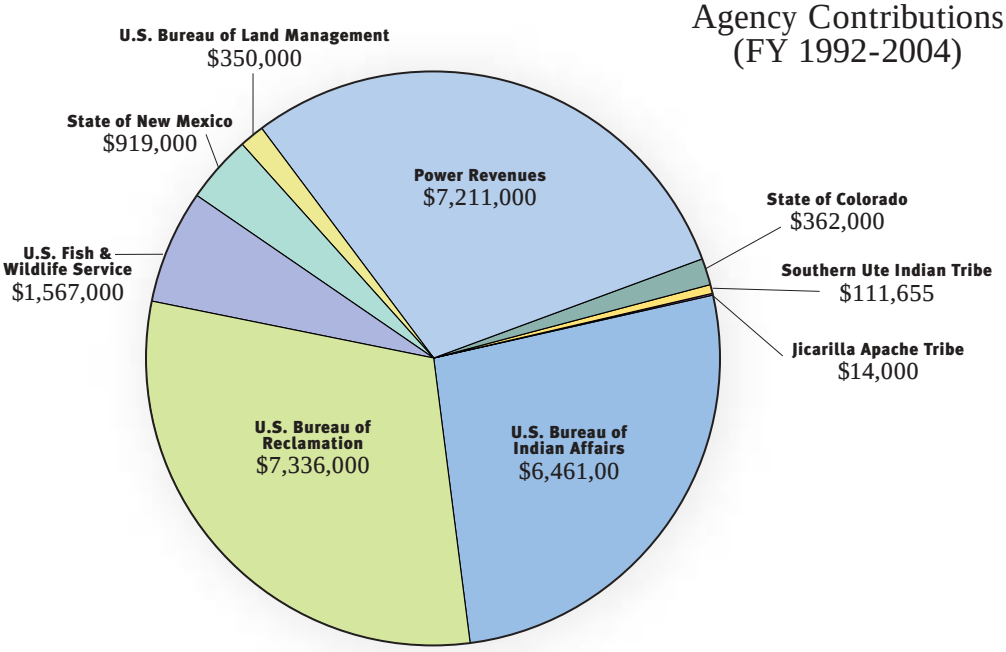


Expenditures

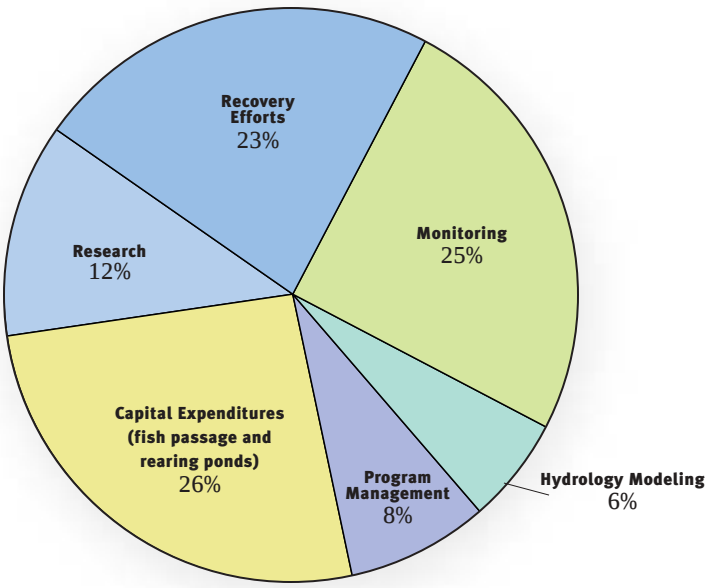
San Juan River Basin Recovery Implementation Program

Total Agency Contributions = $24,361,655 (FY 1992-2004)
(Not including in-kind contributions)

Agency Contributions
(FY 1992-2004)



Projected Expenditures
by Category
(FY 2004 only)



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 with collaborative input from public, private, and tribal stakeholders, and scientists from the Colorado River Basin. The goals are based on the best available science and provide reasonable assurances that recovery can be achieved and the species protected into the future.

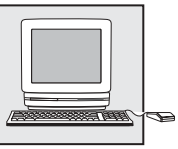
The Upper Colorado River Endangered Fish Recovery Program and the San Juan River Basin Recovery Implementation Program are using this information to further focus and expand their aggressive efforts to bring the four fish species back from the brink of extinction. The Recovery Programs are stocking hatchery-produced fish, working to manage nonnative fishes, and improving 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.

The recovery goals 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) may 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 fish 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
Humpback Chub	
Over a 5-year monitoring period: • 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	For 3 years beyond downlisting: • 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
Bonytail	
Over a 5-year monitoring period: • 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	For 3 years beyond downlisting: • 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
Colorado Pikeminnow	
Over a 5-year monitoring period: • 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	For 7 years beyond downlisting: • 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
Razorback Sucker	
Over a 5-year monitoring period: • Maintain reestablished populations in Green River Subbasin and EITHER in Upper Colorado River Subbasin or in San Juan River Subbasin, each > 5,800 adults • Maintain established genetic refuge of adults in Lake Mohave • Maintain two reestablished populations in lower basin, each > 5,800 adults	For 3 years beyond downlisting: • Maintain populations in Green River Subbasin and EITHER in Upper Colorado River Subbasin OR in San Juan River Subbasin, each > 5,800 adults • Maintain genetic refuge of adults in Lake Mohave • Maintain two populations in lower basin, each > 5,800 adults

Nonnative Fish Threaten Survival of Endangered Fishes

More than 40 nonnative fish species can be found in the Upper Colorado River Basin, compared with 14 native fish species. Negative interactions with certain warmwater nonnative fish species have contributed to declines in endangered and other native fish populations. Some nonnative fish prey upon endangered and other native fishes – eating their eggs and young, and in some cases, larger fish. Nonnative fish also compete with native fish for food and space.

Mark Fuller, U.S. Fish and Wildlife Service

Scientific evidence suggests that the northern pike is one of three nonnative fish species that pose a significant threat to the endangered fishes. As part of nonnative fish management actions, biologists are removing and relocating certain nonnative fish species from the river to local ponds and reservoirs that are publicly accessible to anglers.

In 2003, the Upper Colorado River Endangered Fish Recovery Program expanded efforts to identify management actions to minimize or remove the threat of nonnative fishes to survival of the endangered fishes as described in the August 2002 recovery goals (see page 18). Before work began, the Recovery Program prepared and implemented a comprehensive communications plan to make sure the public was well informed of planned work. Efforts included hosting public meetings in affected communities in Colorado and Utah, informing Congressional staff and other elected officials and proactively seeking news media coverage, including inviting reporters to accompany biologists as they conducted their work.

From late April through October, Recovery Program biologists worked in sections of 438 miles of river in Colorado and Utah to experimentally manage three species of nonnative fishes: channel catfish, northern pike, and smallmouth bass. They targeted these species because scientific evidence suggests they pose a significant threat to the endangered fishes. Where appropriate and practical, biologists transferred fish from the river to local ponds and reservoirs that were publicly accessible to anglers.

Research findings from 2003 shaped nonnative fish management actions that will occur in 2004. These include:

- Increasing efforts to manage northern pike in the Yampa River. Last year's data suggest that movement of northern pike rendered the previously-used approach ineffective. Past efforts in the Gunnison, Colorado, and Green rivers, however, demonstrated success in reducing northern pike. This work will continue in 2004.
- Reducing rapidly rising numbers of smallmouth bass in certain river reaches in Colorado and Utah. This proactive approach is needed to prevent populations from increasing to levels that may become unmanageable.
- Continuing channel catfish removal in Yampa Canyon where management actions have demonstrated success.
- Postponing channel catfish removal / relocation in the Colorado and Green rivers until specific research can occur to identify more effective management methods.

Other Management Actions

The Recovery Program continues to consider other nonnative fish management options which include screening reservoir outlets, berming ponds to prevent nonnative fishes from escaping into the rivers, developing agreements to regulate stocking of nonnative fishes, and changing state bag and possession limits.

Helping Other Native Fish Species

Biologists believe that nonnative fish management actions taken to benefit the endangered fishes also will benefit other native fish species such as the roundtail chub, bluehead and flannelmouth sucker, and speckled dace. "*Our data suggest the abundant gamefish like northern pike, smallmouth bass and channel catfish are eating most of the young fish produced each year,*" says Colorado Division of Wildlife Native Fish Conservation Program Manager Tom Nesler. "*This will result in declining adult populations of native fish species over time. Northern pike have begun to prey upon Colorado pikeminnow in the Yampa River due to the scarcity of fish prey. By working proactively to maintain balance in the river system, it is hoped that all native species will continue to thrive and never require State or Federal protection as threatened or endangered.*"

Students Help Restore Populations of Endangered Fish

Colorado students are helping to restore populations of endangered fish through a unique education program sponsored by the Colorado Division of Wildlife (CDOW). Since 2000, elementary and high school classes in western Colorado have raised endangered razorback suckers or Colorado pikeminnow in classroom aquariums during the school year and released them into the river each spring.

"This is a fabulous program," says fifth-grade teacher Cary Atwood from Scenic Elementary in Grand Junction, Colorado. *"Having razorback suckers in our classroom greatly increased my students' interest in learning about endangered species, the river system, and water quality. They also assumed the responsibility for feeding the fish, testing their water and monitoring their growth. My students definitely developed a greater understanding of how people have affected the delicate balance of native and non-native species in the river system."*

At the start of the school year, CDOW Education Specialist Stan Johnson brings the aquarium and fish to each classroom and provides instruction to the students. At over 6-feet-tall, he towers above the students as he explains that when they are taking care of the endangered fish, *"they are no longer students...they are young scientists."*

With that said, these young scientists understand that what they are doing is serious business. They are contributing to the restoration of populations of once-plentiful native Colorado River fish that are some of the oldest species in the river system, dating back about seven million years.

Tom Czapla, Recovery Program

Fish and Wildlife Service Biologist Patty Schrader Gelatt and her daughter, Amy, listen as Colorado Division of Wildlife Education Coordinator Stan Johnson explains how to record measurements of the razorback sucker. Amy and her classmates will release them to the river.

Tom Czapla, Recovery Program

Tanner Bollacker and his fifth-grade classmates released 11 young razorback suckers into the Colorado River.

"There are very few of these fish left," Stan tells the students. *"You need to take care of these fish so they'll grow large enough to survive in the river when we release them in the spring."*

Cary believes the hands-on experience of raising endangered fish instills her students with a greater sense of how their decisions can affect the world they live in. *"It's more than just learning to test water quality and to take care of a living being,"* she says. *"My students learn that the decisions they make about their environment can have consequences. I think they have gained knowledge from their year with the razorbacks that will remain with them for the rest of their lives."*

Courtesy of Max and Dale Stewart

The Stewart brothers enjoyed 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.

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.