2018 - 2019 Highlights

Upper Colorado River Endangered Fish Recovery Program

San Juan River Basin Recovery Implementation Program

Upper Colorado River Endangered Fish Recovery Program

and

San Juan River Basin Recovery Implementation Program

Implementing Innovative Solutions to Recover Endangered Species

Programs' Highlights

- The recovery programs use science-based, cooperative actions to assist in endangered fish recovery, such as reoperating federal reservoirs to create and maintain habitat, working with irrigators to improve their water efficiency, constructing fish passages, and removing invasive predatory fish.

- The recovery programs' actions provide Endangered Species Act (ESA) compliance for approximately 2,500 water projects providing water for hydropower, irrigation, cities, industry, recreation, and tribal uses.

- In 2018, based on rigorous species status assessments, the U.S. Fish and Wildlife Service (USFWS) recommended downlisting the razorback sucker and the humpback chub from endangered to threatened. Downlisting a species requires a public review process that will start in 2019 for humpback chub, and in 2020 for razorback sucker. Both species are found in multiple population centers throughout the upper and lower Colorado River basins. Please see pages 10 and 11 for more information on these important accomplishments.

Photo by USFWS

Field biologist Nate Cathcart holds an adult razorback sucker encountered in the San Juan River below the waterfall and in the inflow area of Lake Powell.

Photo by Utah Division of Wildlife Resources (UDWR)

A humpback chub caught during monitoring activities on the Colorado River in Westwater Canyon.

__Highlights__ is produced annually to summarize the recovery programs' progress toward recovery of the endangered fishes.
This document is not a publication of the U.S. Department of the Interior or its agencies.
All uncredited photographs are courtesy of the recovery programs.

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Reaching Out to Local Communities

The recovery programs inform the public about endangered fish recovery actions through news, social media, public meetings, interpretive exhibits, water festivals, newsletters, fact sheets, and web sites.

Photo © Gina Tilelli

Lauren Angelo kisses a native sucker as part of Ute Water's Childrens Water Festival in Grand Junction, CO.

Photo © Terry Batey

Anderson Batey holds a four foot Colorado pikeminnow cutout at the Denver Aquarium.

Photo by Colorado Parks and Wildlife (CPW)

Winslow and Brett Walker caught and released this Colorado pikeminnow while fishing in Grand Junction, CO.

Partners' Long-Term Commitment to Collaboration Drives Recovery Programs' Success

In the upper Colorado River basin, water and power customers, American Indian tribes, conservation groups, and state and federal agencies

COLLABORATE

to

RECOVER

endangered fish species.

Upper Colorado River Endangered Fish Recovery Program

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

San Juan River Basin Recovery Implementation Program

State of Colorado
State of New Mexico
Jicarilla Apache Nation
Navajo Nation
Southern Ute Indian Tribe
Ute Mountain Ute Tribe
Bureau of Indian Affairs (BIA)
Bureau of Land Management (BLM)
U.S. Bureau of Reclamation
The Nature Conservancy
U.S. Fish and Wildlife Service
Water Development Interests

Photo by Melanie Fischer, USFWS

Water Release from Elkhead Reservoir

Photo by USBR

Navajo Reservoir Spillway

Photo by USBR

Water Release from Ruedi Reservoir

Reservoir water releases for endangered fish kept many reaches of river from going dry in 2018. The Recovery Programs and their partners released water that benefited fish, agriculture, hydropower, recreation, and anglers. Instream flow was substantially improved in the Yampa River with Elkhead Reservoir releases, and in the Colorado River with water from multiple sources – including generous partner contributions as maintenance releases from Wolford Mountain Reservoir (Colorado River Water Conservation District), leased water from Ruedi Reservoir (Ute Water Conservancy District and Colorado Water Conservation Board [CWCB]), and Ruedi water made available by ExxonMobil subsidiary XTO Energy.

State, Tribal, and Federal Leaders Endorse Recovery Programs' Accomplishments

State, tribal, and federal leaders have supported the recovery programs for their cost-effective and collaborative on-the-ground achievements. They recognize the challenges of meeting the water development and management needs of western communities, while working toward conservation of endangered fish species.

State Leaders Value Endangered Fish Recovery Programs' Accomplishments:

"The State of New Mexico has a vested interest in the successful outcome of these programs. New Mexico is highly reliant upon continued use of the waters of the San Juan River system for continued economic growth in the state … for power generation, for agricultural purposes, and for municipal and industrial uses …"

Susana Martinez, Former Governor, State of New Mexico

"The success of the Upper Colorado River and San Juan River Endangered Species recovery programs is vital for Utah's continued use and development of Utah's Colorado River apportionment as part of our state's continued progress in providing for the needs of the citizens of Utah."

Gary R. Herbert, Governor, State of Utah

"Wyoming has been an active participant in the recovery program, ensuring the recovery of four endangered fish species while allowing for the development of the Compact appropriations. It is imperative that the recovery program remains viable and continues to provide reasonable and practical alternatives to assure ESA compliance."

Matthew H. Mead, Former Governor, State of Wyoming

"The endangered fish recovery programs are models of collaborative, grassroots efforts that leverage cooperation from numerous stakeholders to ensure these remarkable ancient fish continue to swim in the Colorado River System. The programs support millions of people who depend on the rivers' water to grow food, generate electricity, and serve the needs of cities and towns."

John W. Hickenlooper, Former Governor, State of Colorado

Tribal Leaders Stress Recovery Programs' Contributions:

"Jicarilla Apache Nation has been a participant in the San Juan River Basin Recovery Implementation Program since its inception in 1992 … The continuation of the program is of the utmost importance to the Nation and the economic viability of the region."

Levi Pesata, President, Jicarilla Apache Nation

"The Navajo Nation is an active participant in, and strong supporter of, the San Juan River Basin Recovery Implementation Program … These two successful, ongoing cooperative partnership programs involve the States of Colorado, New Mexico, Utah and Wyoming, Indian tribes, federal agencies and water, power, and environmental interests …"

Ben Shelly, Former President, The Navajo Nation

The Department of the Interior Recognizes the Recovery Programs' Benefits:

"The Colorado River recovery programs have become a national model for collaborative species recovery efforts. Here in one of the nation's fastest growing areas, we continue to work successfully with a broad array of partners to secure the future of the river's endangered native fishes, while meeting the water needs of communities across the river's watershed. As the impacts of a changing climate and human populations continue to grow, these partnerships will become increasingly vital to sustaining our natural heritage in the Colorado River basin."

Sally Jewell, Former Secretary of the Interior, 2014

"The Colorado River recovery programs have become a national model for implementing the Endangered Species Act while addressing the demand for water development to support growing western communities. In one of the nation's fastest growing areas, Interior agencies work collaboratively with a broad array of partners to secure the future of the river's endangered native fishes, while meeting the water needs of communities across the river's watershed and preserving the natural heritage in the Colorado River basin."

Timothy Petty, Assistant Secretary of the Interior, 2018

"The strength of the Colorado River recovery programs flows from the commitment and engagement of its partners. Management actions are developed and implemented with the equal participation of each partner, ensuring that those actions contribute effectively to recovery of the river's native fish species and allow for development of critical water projects. The U.S. Fish and Wildlife Service and the Department of the Interior play a key role in supporting these partnerships, and we are committed to strengthening and expanding our support for their vital work."

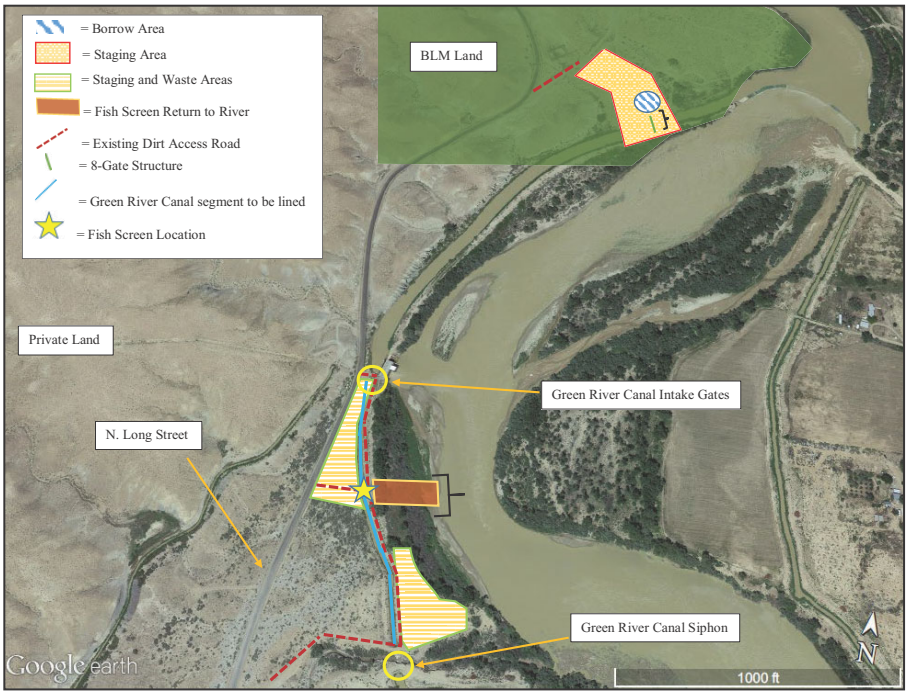
Dan Ashe, Former Director of the U.S. Fish and Wildlife Service, 2014

"The Upper Colorado River and San Juan River Basin Recovery Implementation Programs are models for Endangered Species Act implementation and help provide water reliability for approximately 2,500 municipal, industrial, and agricultural water projects throughout the Upper Colorado Basin. These programs were established under cooperative agreements between federal, state, tribal and non-government agencies who are working collaboratively to ensure the future of the endangered fish while meeting the water delivery requirements of communities within the basin."

Brenda Burman, Commissioner of Reclamation, 2018

Capital Projects Restore Endangered Fish Habitat

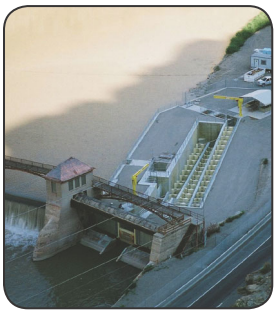
The recovery programs work cooperatively with American Indian tribes, water and power customers, and local landowners to improve endangered fish habitat. Habitat restoration and maintenance includes reconnecting fragmented river reaches through construction and operation of fish passages at irrigation diversion dams; preventing fish from entering and becoming trapped in irrigation diversion canals through construction and operation of fish screens; and acquisition, restoration, and management of floodplain habitat to serve primarily as fish nursery areas.



Recent monitoring in the lower Green River showed that many endangered fish were entering into the Green River Canal, near Green River, Utah, especially in drier years. A weir wall and screen are being built on the canal to prevent fish from entering it and dying (photo to left). The structure will allow fish to return to the river.

Cost of project: $3.8 Million
Estimated completion date: Spring 2019

The majority of the Upper Colorado Program's construction projects needed to recover the endangered fishes are complete (dates shown below). Located in western Colorado, these fish passages and screens contribute to unimpeded access to approximately 340 miles of designated critical habitat in the Colorado and Gunnison rivers.



Grand Valley Fish Passage

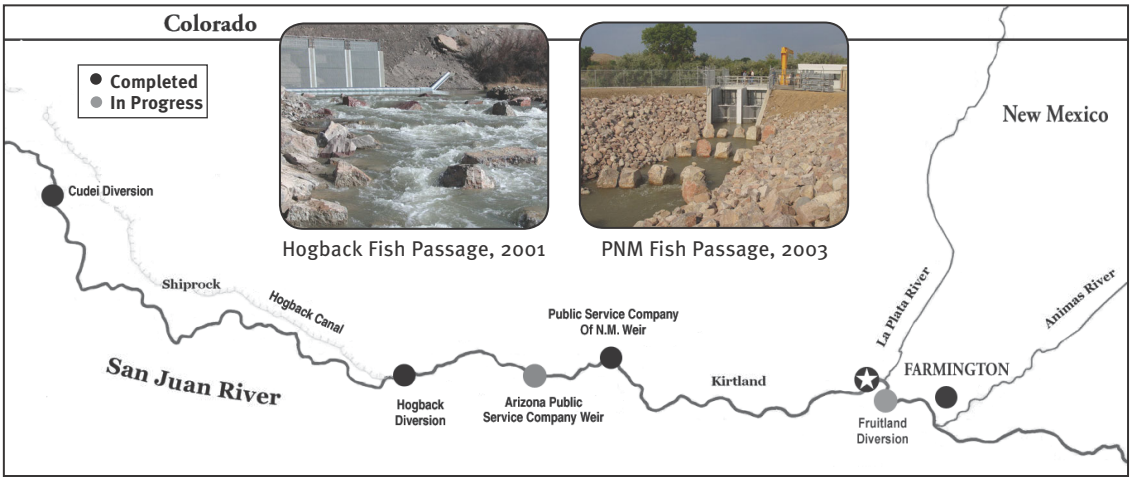
GVIC Fish Screen

Redlands Fish Passage

Completed Capital Projects for Upper Colorado Recovery Program

Redlands Fish Passage, 1996
GVIC Fish Passage, 1998
GVIC Fish Screen, 2002
Grand Valley Project Fish Passage, 2004
Redlands Fish Screen, 2005
Grand Valley Project Fish Screen, 2007
Price-Stubb Fish Passage, 2008

San Juan Recovery Program Capital Projects



Hogback Fish Passage, 2001

PNM Fish Passage, 2003

Planned renovations to the Fruitland Diversion will include a fish passage and an exclusion device to prevent fish entrainment. The feasibility of increasing fish passage and reducing entrainment at other diversions along the San Juan and Animas rivers is being evaluated, with initial designs in development for the Arizona Public Service weir.

Endangered Species Act Compliance Streamlined for Water and Hydropower Projects

The Upper Colorado River and San Juan River Basin recovery programs respond to the challenge of water management by working with local, state, federal, and tribal agencies to meet the needs of people and endangered fish. The programs' goal is to achieve full recovery (delisting) of the endangered fishes, not just to avoid jeopardy (offset impacts of water project depletions) under the ESA. The recovery programs provide ESA compliance for water development and management activities for federal, tribal, and non-federal water users. This includes Bureau of Reclamation-operated dams and projects across the Upper Colorado and San Juan river basins. Responsibilities to offset water project depletion impacts do not fall on individual projects or their proponents.

The recovery programs currently provide ESA compliance for 2,500 water projects depleting more than 3.7 million acre-feet per year. No lawsuits have been filed on ESA compliance for any of these water projects.

Upper Colorado River Endangered Fish Recovery Program
Summary of Endangered Species Act Section 7 Consultations
1/1988 through 12/31/2018

		Historical Depletions	New Depletions	Total
State	**Number of Projects**	**Acre-Feet/Yr**	**Acre-Feet/Yr**	**Acre-Feet/Yr**
Colorado	1,243	1,915,682	207,213	2,122,895
Utah	266	517,898	100,587	618,485
Wyoming	422	83,498	39,394	122,892
CO/UT/WY	238[1]	(Regional)	(Regional)	
Total	**2,169**	**2,517,078**	**347,193**	**2,864,271**

[1]Small depletion projects (<100 acre-feet per year) consulted on between July 3, 1994, and October 1, 1997, when the Recovery Program did not track the number of these projects by state. Depletion totals associated with these 238 projects are captured by state under new depletions.

San Juan River Basin Recovery Implementation Program
Summary of Endangered Species Act Section 7 Consultations
1/1992 through 12/31/2018

State	Number of Consultations	Depletions Acre-Feet/Yr
New Mexico	23	653,758
Colorado	313	222,096
Utah	15	9,327
Total	**351**	**885,181**

Cooperative Water Management Provides Flows for Endangered Fishes

Green River: Releases from Flaming Gorge Dam augment spring and base flows, ROD Feb. 2006

White River: Future Water Management Plan and PBO will identify flow protections

Duchesne River: Releases from Starvation and Big Sand Wash Reservoirs augment spring and base flows, BO July 1998

15-Mile Reach–Colorado River: Releases from multiple reservoirs *(see table, top right)* and irrigation efficiencies augment flows, PBO Dec. 1999

Price River: Opportunities being investigated to help achieve USFWS suggested minimum flows, Position Paper May 2012

Reservoirs

Critical Habitat

BO = Biological Opinion

PBO = Programmatic Biological Opinion

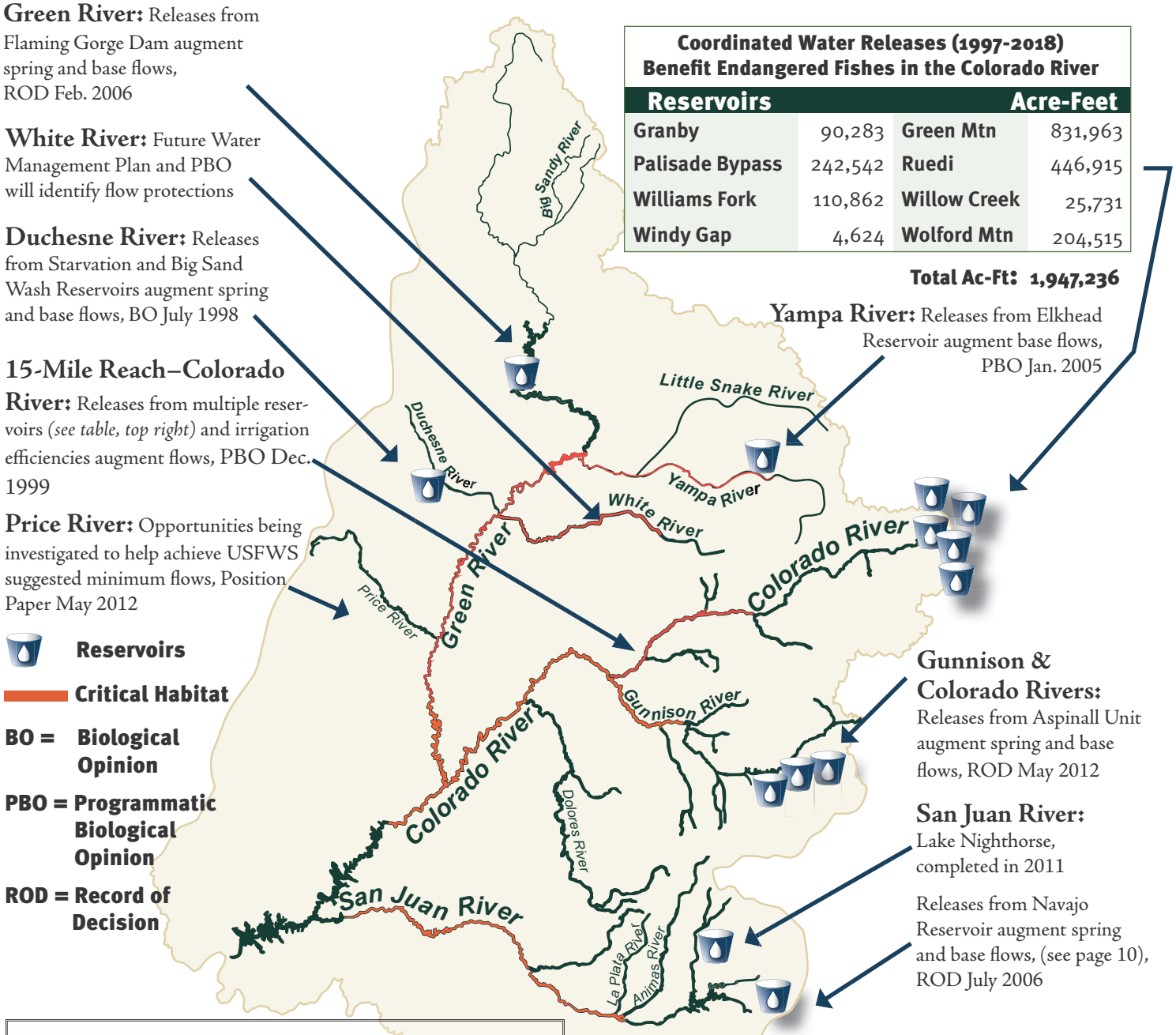
ROD = Record of Decision

Coordinated Water Releases (1997-2018)
Benefit Endangered Fishes in the Colorado River

Reservoirs			Acre-Feet
Granby	90,283	Green Mtn	831,963
Palisade Bypass	242,542	Ruedi	446,915
Williams Fork	110,862	Willow Creek	25,731
Windy Gap	4,624	Wolford Mtn	204,515

Total Ac-Ft: 1,947,236

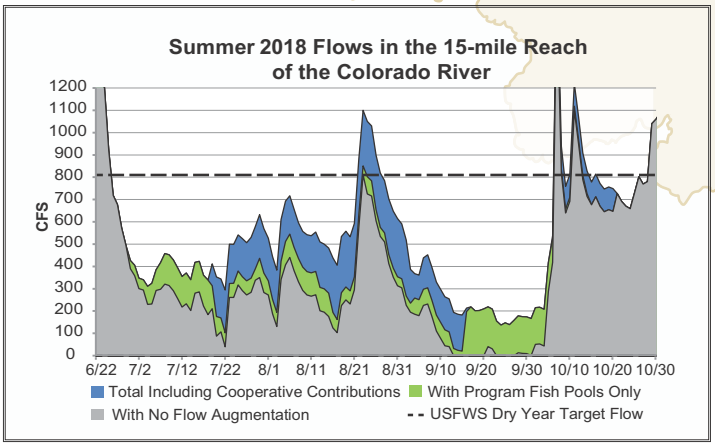
Yampa River: Releases from Elkhead Reservoir augment base flows, PBO Jan. 2005



Gunnison & Colorado Rivers: Releases from Aspinall Unit augment spring and base flows, ROD May 2012

San Juan River: Lake Nighthorse, completed in 2011

Releases from Navajo Reservoir augment spring and base flows, (see page 10), ROD July 2006



Partners Work Together to Coordinate Flows

Without reservoir releases for endangered fish, flows in the 15-Mile Reach of the Colorado River (gray) would have dropped to zero in late September, 2018. Water in this reach was augmented with 16,425 ac-ft of reservoir releases from the Program's dedicated endangered fish pools (green), plus an additional 27,986 ac-ft of releases (blue) made available through special efforts by the Colorado River Water Conservation District, CWCB, Ute Water Conservancy District, USBR, and ExxonMobil subsidiary XTO Energy in cooperation with WAPA.

Hatcheries Reestablish Endangered Fish Populations

Genetically-diverse, hatchery-produced fish are stocked to reestablish naturally self-sustaining populations of razorback sucker and bonytail in the Upper Colorado River system and razorback sucker and Colorado pikeminnow in the San Juan River. Stocked fish contribute* to meeting the demographic criteria of the recovery goals. The recovery programs monitor survival and reproduction of stocked fish to evaluate and improve stocking strategies. In most cases, the facilities are exceeding their annual production targets. Humpback chub are not stocked anywhere.

Facility, Location (Target Number)	River, # Stocked and Average Size in 2018		
	Green	Colorado	San Juan
Bonytail: average size 10 inches			
J.W. Mumma Native Aquatic Species Restoration Facility, Alamosa, CO (5,000)	2,592; 12.9”	3,267; 12.2”	
Wahweap State Fish Hatchery, Big Water, UT (10,000)	6,906; 10.3”		
Ouray National Fish Hatchery – Randlett Unit, Vernal, UT (10,000)	11,622; 9.8”		
Ouray National Fish Hatchery – Grand Valley Unit, Grand Junction, CO (10,000)		11,630; 9.6”	
Razorback sucker: average size 14 inches			
Ouray National Fish Hatchery – Randlett Unit, Vernal, UT (6,000)	6,259; 15.2”		
Ouray National Fish Hatchery – Grand Valley Unit, Grand Junction, CO (6,000)		7,423; 14.3”	
Ouray National Fish Hatchery-Horsethief Canyon Native Fish Facility, Fruita, CO (2,000-3,000)			4,812; 13.3”
Navajo Agricultural Products Industry (NAPI) Ponds, Farmington, NM (6,000-8,000)			3,831; 13.9”
Southwest Native Aquatic Resources and Recovery Center, Dexter, NM (11,000)			1,063; 12.8”
Colorado pikeminnow: fingerlings, 1.75 inches total length			
Southwest Native Aquatic Resources and Recovery Center, Dexter, NM (400,000)			430,723; 1.7+”

Photo by Melanie Fischer, USFWS

Bonytail are raised in grow-out ponds and harvested using seine nets. They are measured, tagged, transported to the river, and released.

Photo by Zane Olsen, UDWR

Wahweap State Fish Hatchery in Big Water Utah raises bonytail.

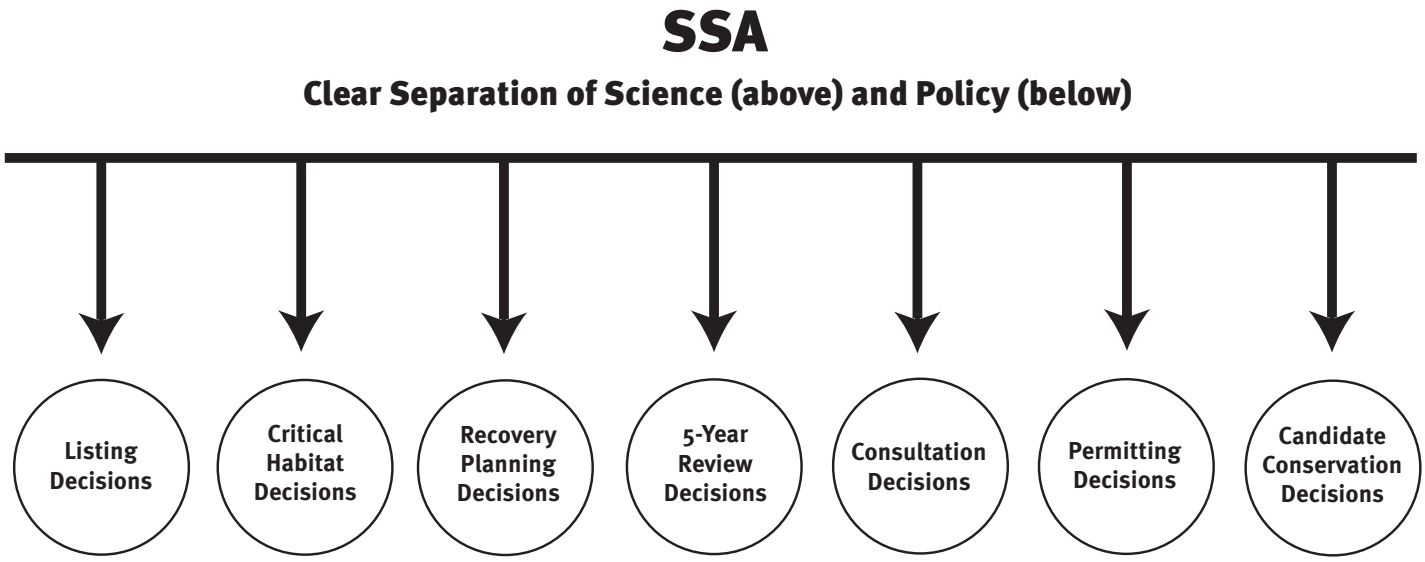
*All four species of endangered fish are long-lived (up to 40 years). The USFWS includes hatchery-produced fish in population estimates.

Status of Endangered Fishes

The recovery programs use science-based, cooperative actions to assist in endangered fish recovery, such as reoperating federal reservoirs to create and maintain habitat, working with irrigators to improve their water efficiency, constructing fish passages, and removing invasive predatory fish. USFWS has recently developed a process using a single document (Species Status Assessment [SSA]) to inform all ESA decisions. SSAs were developed for the humpback chub and razorback sucker in 2017 and 2018, respectively. Five-year reviews followed for both species.

Species Status Assessment

The SSA is a focused, repeatable, and rigorous scientific assessment that provides the foundation for all ESA policy decisions. The SSA is a **transparent process** with **expert and partner input**, using **best available science** through a **consistent analysis structure** to **review species needs**, **current and future condition**. It is **peer-reviewed** and makes **conclusions based on science** only. It is designed to "follow the species" in the sense that the information on the biological status is available for conservation use and can be updated with new information.



SSAs Support Diverse ESA Policy Decisions

5-Year Review

Every five years, the USFWS evaluates the status of each species using the scientific information presented in the SSA (if one has been written for that species). The USFWS assesses progress towards recovery goals and reductions of threats to the species. A 5-year review can recommend reclassification of the species or continuation of its current status.

Downlisting or Delisting Actions

Downlisting is the reclassification of a species from endangered to threatened. Delisting is the removal of a species from the Federal Lists of Endangered and Threatened Wildlife and Plants. If downlisting or delisting is recommended in a 5-year review, a proposed rule is written and published in the Federal Register. If the proposed change in status is still warranted after scientific review and public comment, a final rule is published to delist or downlist the species.

In 2018, the USFWS completed 5-year reviews and recommended downlisting the razorback sucker and the humpback chub. Downlisting a species from endangered to threatened requires a public review process that will start in 2019 for humpback chub, and in 2020 for razorback sucker. Both species are found in multiple population centers throughout the upper and lower Colorado River basins. Please see pages 10 and 11 for more information on these important accomplishments.

Increase in Razorback Sucker Populations Shows Progress Toward Recovery

RAZORBACK SUCKER (*Xyrauchen texanus*)

Photo by New Mexico Game and Fish (NMGF)

YOY razorback sucker captured on the San Juan River.

Photo by NPS

Closeup of razorback sucker.

◆ In 2018, an SSA for razorback sucker was completed, defining species needs, current condition and potential futures. Razorback sucker need complex habitat, either in lakes or in rivers with variable flows and protection from nonnative predators in the form of cover or turbidity. Variable flows in rivers provide access to rearing habitat if flows increase after larvae are present in the river, transporting them into floodplain wetlands.

Figure 1

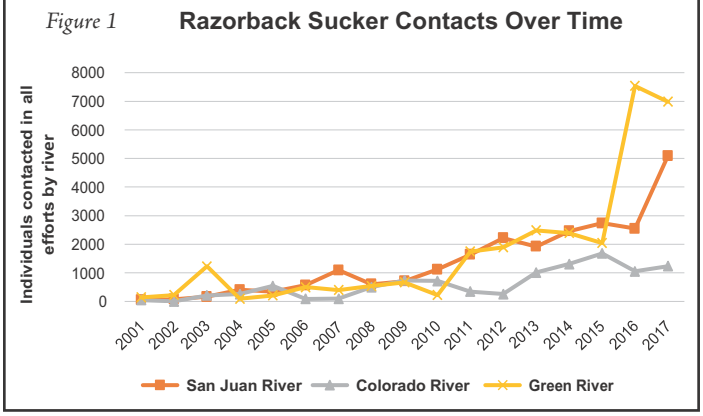
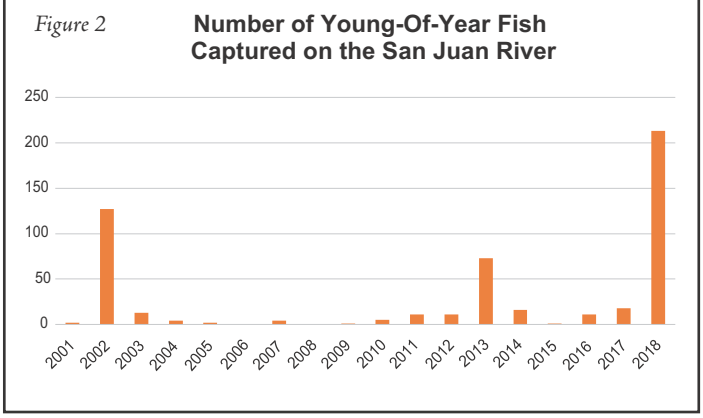


Figure 2



◆ Currently, eight populations occupy much of the historical range. Populations of stocked razorback sucker have increased in the upper basin *(Figure 1)* and are stable in the lower basin. Wild-recruited razorback sucker remain rare in all populations except Lake Mead, but indications of natural recruitment are increasing. During the summer of 2018, biologists captured 213 young-of-year (YOY) razorback sucker in the San Juan River - the greatest number found since surveys began more than 20 years ago *(Figure 2)*. Flow releases from Navajo Dam in 2017 may have created habitat to support young fish.

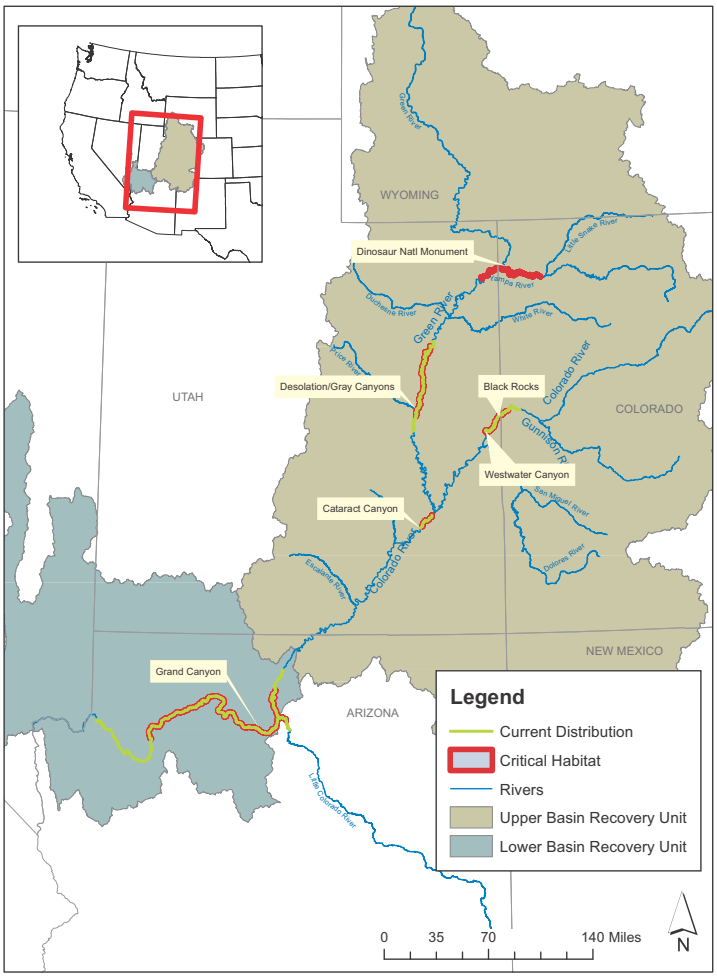
◆ Most razorback sucker populations are reliant on management actions provided by recovery and conservation programs (including stocking, flow management, wetland management, and nonnative fish removal) and are likely to remain so into the future. The SSA was followed by a 5-year review recommending downlisting of the species to threatened. A proposed rule and public comment period are anticipated in 2020.

Photo by USBR

Navajo Reservoir.

Stable, Wild Populations of Humpback Chub Show Progress Towards Recovery

HUMPBACK CHUB (*Gila cypha*)



Locations of humpback chub populations in the Colorado River Basin.

◆ The SSA for humpback chub defines species needs, current condition, and potential futures. Humpback chub need rocky canyon habitat with variable flows, protection from nonnative predators and competitors, suitable water temperature and quality, and sufficient food.

◆ Humpback chub populations are relatively stable and likely to remain so into the future. Currently, there are five self-sustaining populations, four in the upper basin and one large, expanding population in the lower basin, occupying much of the historical range of the species (see map on left). The Dinosaur National Monument population has been extirpated, but efforts are ongoing to explore reintroduction. Upper basin populations vary in size and are limited by adequate flow regimes (see page 7) and predatory nonnative fish (see page 14-15), but they are persistent.

◆ Based on these results, the SSA was followed by a 5-year review recommending downlisting of the species to threatened because the species is not currently in danger of extinction. A proposed rule and public comment period are anticipated in 2020.

All Photos on this page by USFWS

Photo © Mark Newell III

Janay Newell holds a Colorado pikeminnow that she estimates was at least 48" in length and 25 pounds - researchers estimate this fish to be at least 20 years old. Janay caught and released this fish, July 2018, on the White River near Rangely, CO.

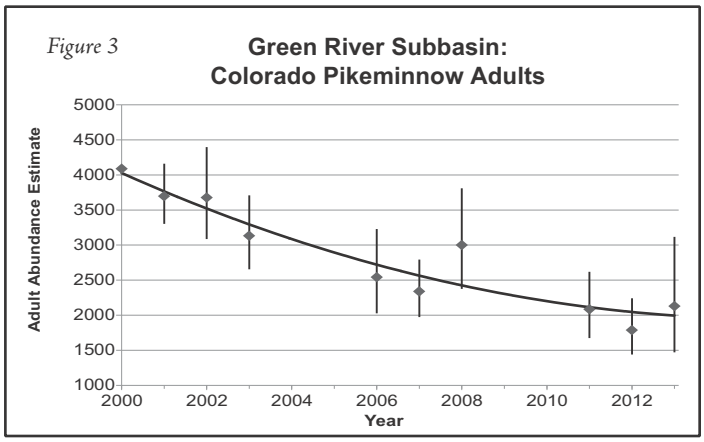


Photo © Charlie Card

Charlie Card, Trout Unlimited, encountered this adult Colorado pikeminnow while flyfishing on the Green River in Utah.

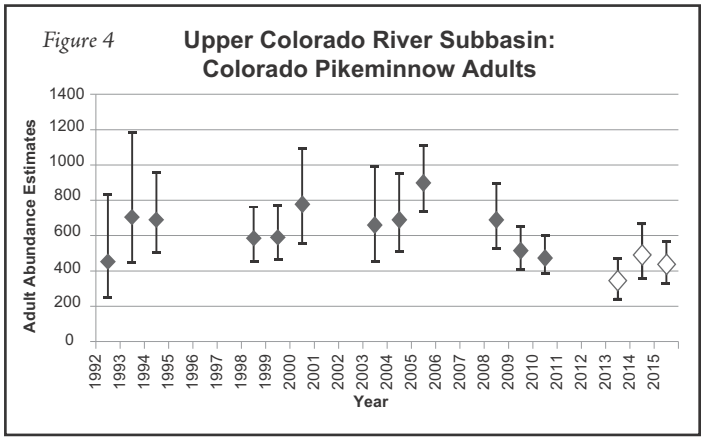
Upper Colorado Program

◆ Wild Colorado pikeminnow populations occur in the Green and Colorado river sub-basins of the Upper Colorado River.

- The population of adult (8+ years old) Colorado pikeminnow in the Green River has varied from a high of approximately 4,000 individuals to about 2,000 *(Figure 3)*. Another round of abundance estimates was recently completed in 2018, and data are being analyzed. The Service's downlisting criterion for this sub-basin is 2,600 adults.

- Estimates of adult Colorado pikeminnow abundance in the Colorado River sub-basin began in 1992 *(Figure 4; estimates for 2013 – 2015 are preliminary)*. The population has fluctuated from a recent low of about 400 adults to more than 800 adults in 2005. The Service's downlisting criterion for this sub-basin is 700 adults.

- Survival of wild spawned Colorado pikeminnow young-of-year (YOY) varies widely on an annual basis, largely in response to river conditions. During the extreme drought conditions in 2018, YOY catch was moderate in the Colorado River, and low in the Green River. Control of invasive fish species and improved management of base flows are priority actions to improve YOY survival.



San Juan Program

◆ Colorado pikeminnow are being reestablished in the San Juan River.

- 2,912,113 Colorado pikeminnow have been stocked in the San Juan River between 2011 - 2017.

- The number of stocked Colorado pikeminnow captured during monitoring projects increased in 2017 *(Figure 5)*.

- Wild-spawned Colorado pikeminnow larvae have been increasing since 2009, with 95% of larvae captured between 2014-2017.

- Habitat restoration projects, in conjunction with spring releases of water from Navajo Dam in 2016 and 2017, have increased habitat available for early life stages of fish. These actions are also believed to contribute to observations of improved juvenile Colorado pikeminnow survival.

Figure 5 **San Juan River, Colorado Pikeminnow**

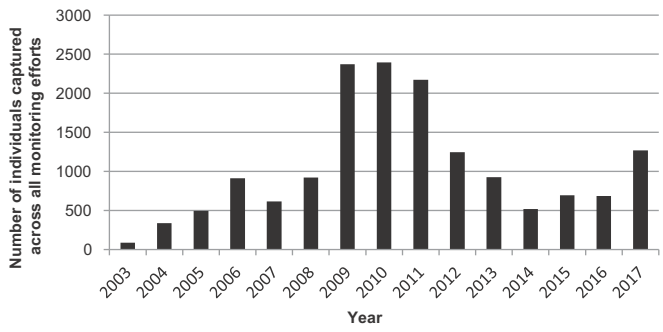


Photo by USFWS

Jason Davis, USFWS with an adult Colorado pikeminnow caught in the San Juan River.

BONYTAIL (*Gila elegans*)

◆ When the Upper Colorado River Program was established, bonytail had disappeared and little was known about their habitat requirements. Hatchery produced fish are stocked to determine their life history needs and to eventually rebuild self-sustaining populations.

- Survival of stocked bonytail appears to be very low. Biologists continue to experiment with new hatchery techniques to produce healthier fish and new stocking strategies (e.g., different habitats and times of the year) to improve survival in the wild.

- Despite low survival, encounters with previously stocked bonytail are increasing *(Figure 6)*.

Figure 6 **Bonytail Encounters Over Time**

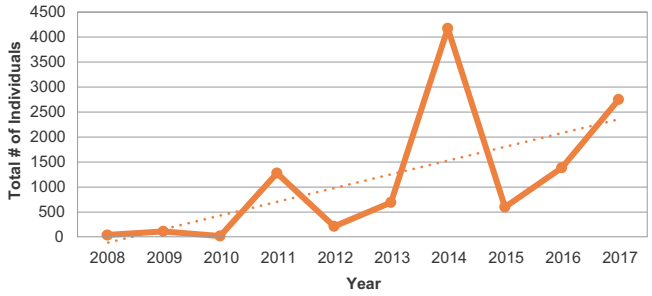
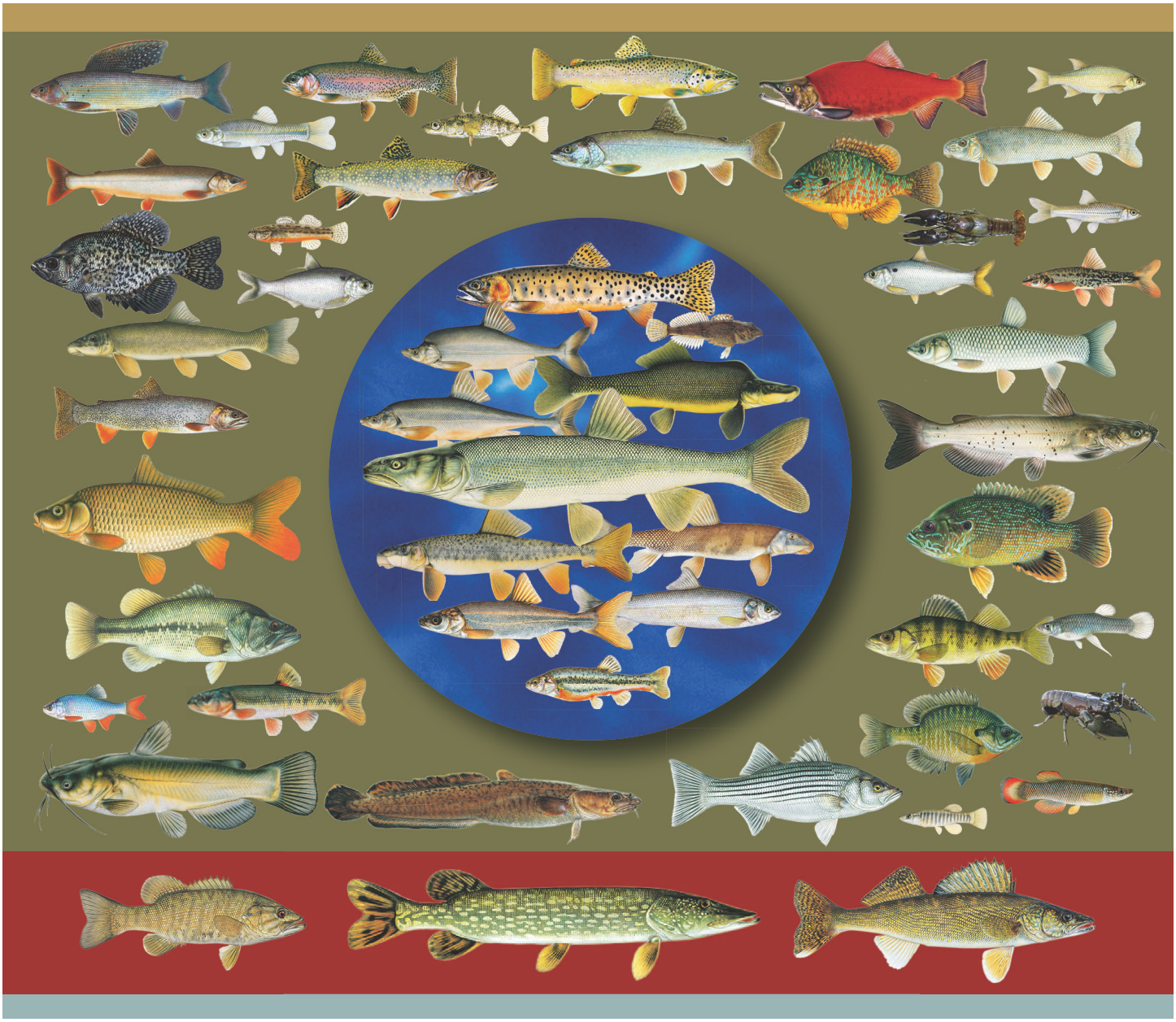


Photo by Dale Ryden, USFWS

When Utah Division of Wildlife Resources stocked this bonytail in the Colorado River near the CO/UT stateline on 11/17/2007 it was one year old and 6.75" in length. USFWS crews recaptured this fish on 5/24/2018 five miles upstream of its stocking location; it had grown 13" during its time in the wild.

Upper Colorado River Major Threat: Invasive Species

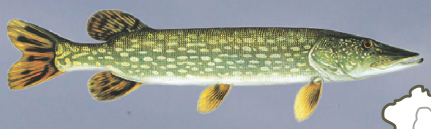
Predation and competition by nonnative fish species are the primary threats to endangered fish recovery in the upper basin and the most challenging threat to manage. Over the past 150 years, the small number of species native to the upper Colorado River basin (blue circle) have been joined by numerous nonnative fish species (green and red boxes). The three species shown in red (smallmouth bass, northern pike, and walleye) are the nonnatives of greatest concern. These three fish prey on native fish both large and small (photos across bottom). The Upper Colorado Recovery Program removes these three species in over 600 miles of river and within reservoirs that drain to endangered fish habitat (see page 15).



All photos by Recovery Program partners.

Invasive Predators of Greatest Concern

SMALLMOUTH BASS



NORTHERN PIKE

WALLEYE

CHANNEL CATFISH*

RESERVOIR SOURCES OF NONNATIVE FISH

CONTAINED

PARTIALLY CONTAINED

NOT CONTAINED

CANNOT BE CONTAINED

*The San Juan Recovery Program considers channel catfish to be the predator of greatest concern in the San Juan River.

Photo by USFWS

Providing Angler Opportunity and Satisfaction is a Critical Part of Nonnative Fish Management

The Upper Colorado River Endangered Fish Recovery Program and the States of Colorado, Utah, and Wyoming strive to provide angler satisfaction by:

Seeking angler input in management decisions: Angler input provides public support and sportfishing satisfaction.

Photo by Mike Porras, CPW

Public meetings are held to determine what compatible species anglers would like to fish for in Upper Basin reservoirs.

Enacting appropriate fishing regulations: Liberalized fishing regulations make anglers part of the solution.

Photo by Melanie Fischer, USFWS

Tournaments with prizes for catching problematic species in reservoirs promotes interest in species removal.

Researching and using new technologies: Stocking fish that cannot reproduce (sterile fish) offers angling opportunity.

Photo by UDWR

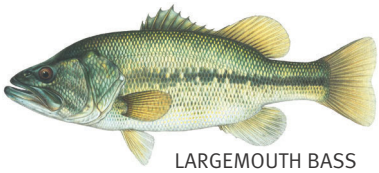
Sterile versions of popular sportfish like walleye provide angler opportunity while reducing risk to downstream endangered fish.

Providing angling opportunities compatible with endangered species recovery: Families can enjoy compatible sportfishing year round.

Photo by Travis Francis, USFWS

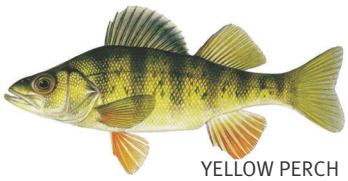
Popular sport fish that are compatible with endangered species recovery, such as largemouth bass, are offered to anglers in place of problematic species (see below).

YES - Compatible sportfish can be stocked in reservoirs by states

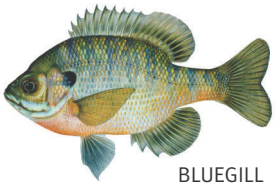


LARGEMOUTH BASS

BLACK CRAPPIE



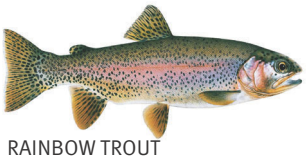
YELLOW PERCH



BLUEGILL

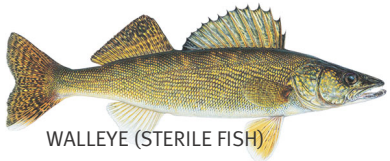
BROWN TROUT

KOKANEE



RAINBOW TROUT

HYBRID STRIPED BASS (STERILE FISH)

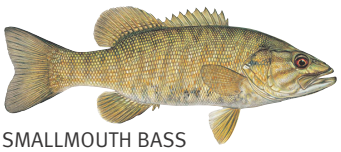


WALLEYE (STERILE FISH)

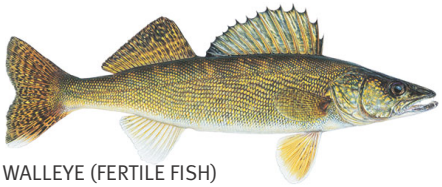
...and many others!

NO - Incompatible sportfish cannot be stocked in reservoirs

NORTHERN PIKE



SMALLMOUTH BASS



WALLEYE (FERTILE FISH)

Preventing Nonnative Fish Escapement in Reservoirs


Photo by CPW

Rifle Gap fish screen.


Photo by USFWS

Morgan Lake nonnative fish escapement structure.


Photo by USFWS

Catamount spillway.


Photo by Phil Ipsom, USBR

Ridgway spillway.

Reservoir escapement of incompatible species such as smallmouth bass, northern pike, and walleye impairs Recovery Program removal efforts downstream. In order to prevent this escapement, Recovery Program partners have installed barriers such as screens or nets at Rifle Gap Reservoir, Elkhead Reservoir, and others, but still need to install structures at Ridgway Reservoir and Lake Catamount. Screening Ridgway Reservoir is the highest priority for the Program because the downstream Gunnison River has a healthy native fish community, without nonnative smallmouth bass.

High Quality Fishing Opportunities in Reservoirs


Photo by UDWR

Black crappie in Red Fleet Reservoir.


Photo by CPW

Stocking sterile walleye fry.

It is important to the Recovery Program that communities retain high quality fishing opportunities as reservoirs are managed with endangered species considerations. Transitioning reservoir fisheries from incompatible northern pike, walleye, and smallmouth bass to compatible species, such as black crappie and largemouth bass is a key aspect of reservoir management. In Utah, Red Fleet Reservoir has been stocked with black crappie and sterile walleye after removing an illicitly introduced fertile walleye population. In Colorado, Colorado Parks and Wildlife stocks sterile walleye to replace fertile walleye, and largemouth bass to replace smallmouth bass.

Fishing Tournaments


Photo by Joe Lewandowski, CPW

2017 Ridgway Fishing Tournament delivered large smallmouth bass.

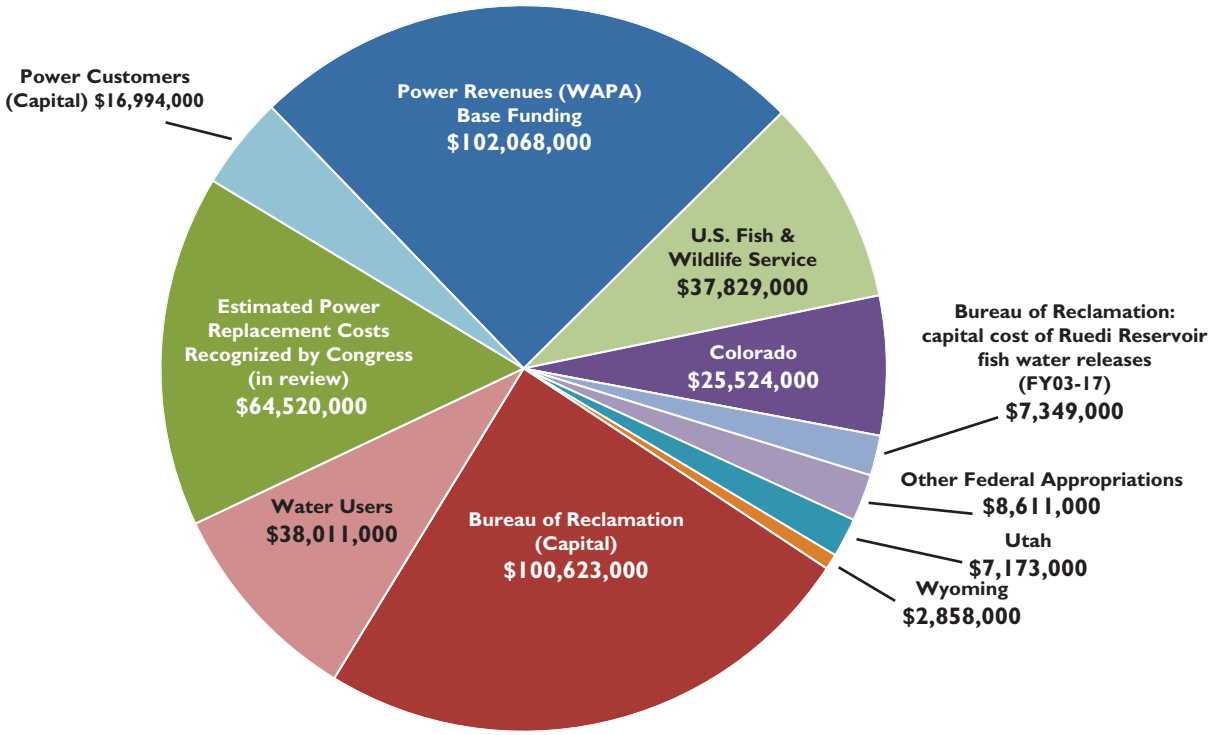

Photo by Melanie Fischer, USFWS

Largest northern pike “Catch of the Day” at the 2017 Elkhead Classic.

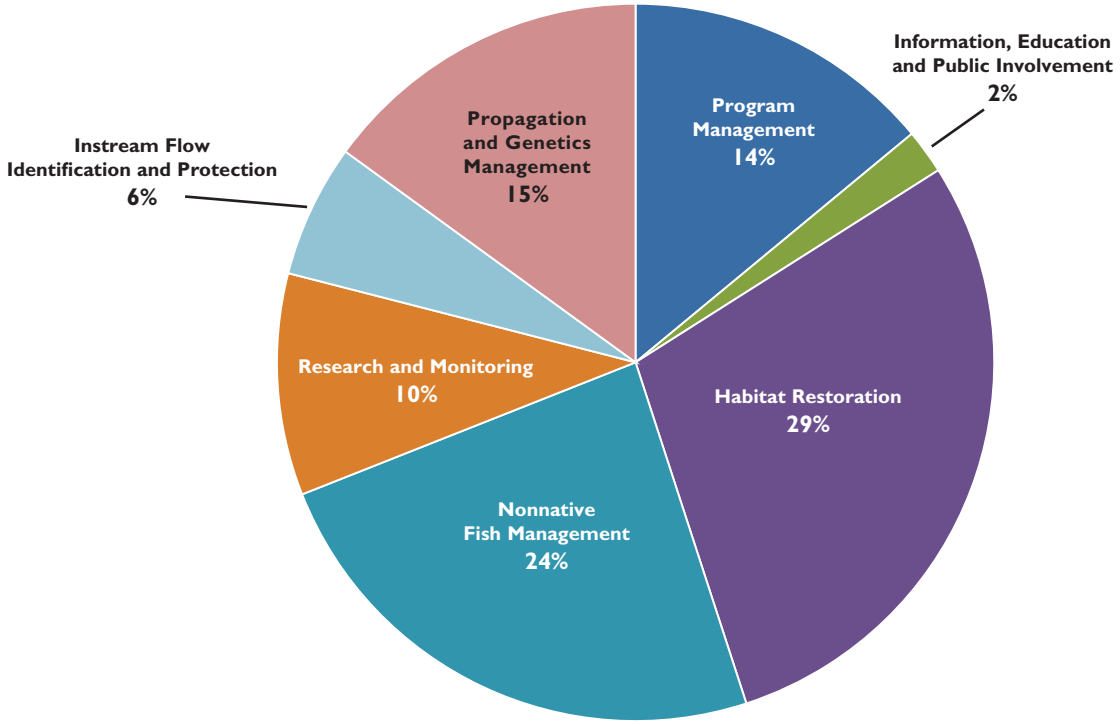
At the 2018 Ridgway Smallmouth Bass Classic, anglers removed over 1,400 smallmouth bass in three weeks. Biologists estimate that four years of tournaments have reduced the population of smallmouth at Ridgway Reservoir by 58%! At the 2018 Elkhead Classic, anglers removed over 300 northern pike and over 500 smallmouth bass in 9 days. Both species are being impacted by the tournaments.

Expenditures
Upper Colorado River Endangered Fish Recovery Program

Total Partner Contributions = $411,560,000 (FY 1989-2018)

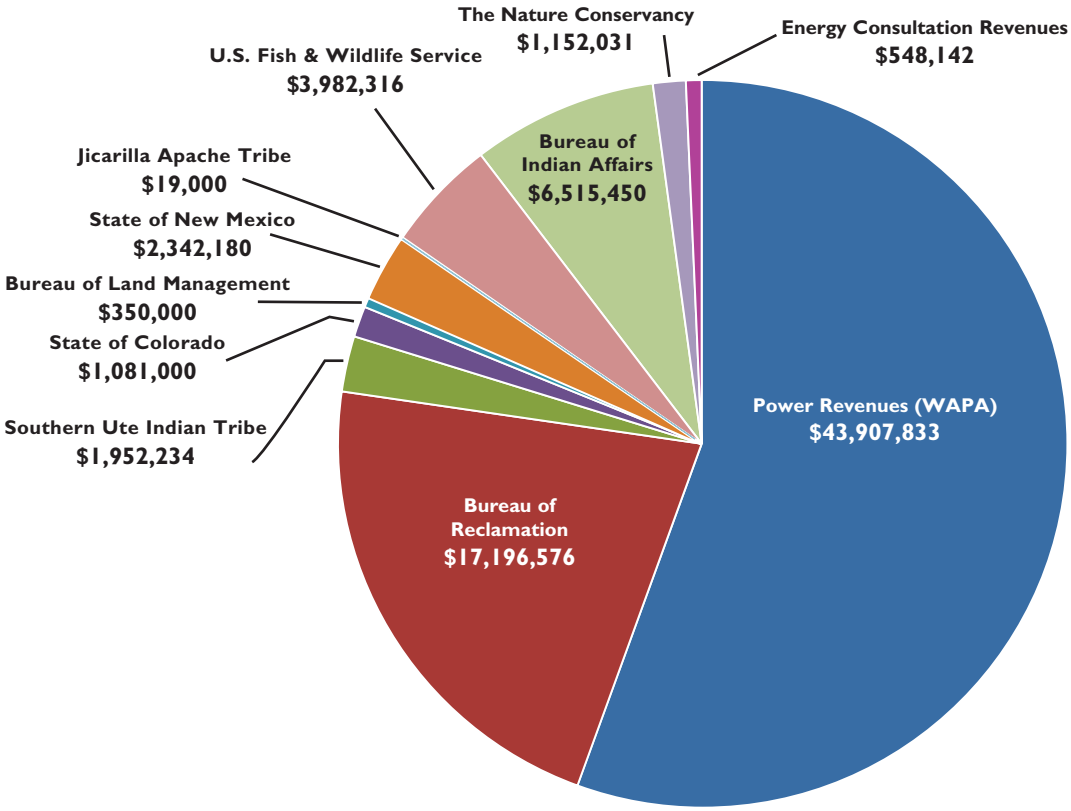


Projected Expenditures by Category (FY 2018 only)

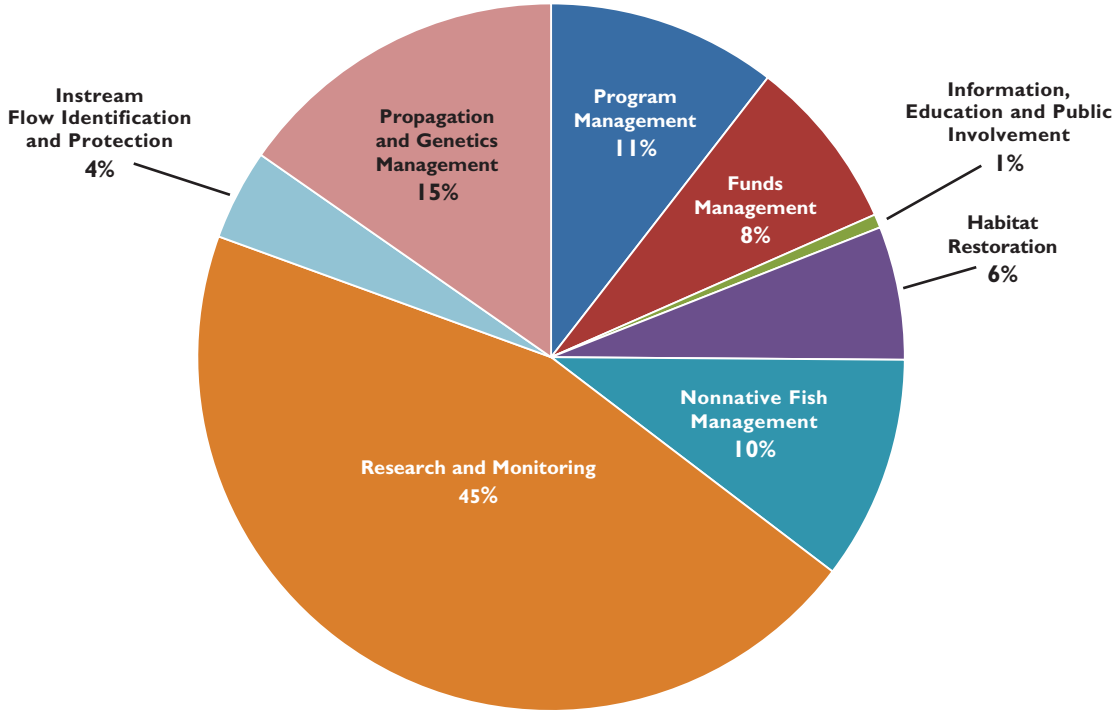


Expenditures
San Juan River Basin Recovery Implementation Program

Total Partner Contributions = $82,460,061 (FY 1992-2018)
(Not including in-kind contributions)



Projected Expenditures by Category (FY 2018 only)



Cost-Sharing Commitments and Power Revenues Support Species Recovery

Continuing the recovery programs' success requires funding to implement recovery actions. Public Law 112-270 (January 2013) extended annual funding at currently authorized levels through FY 2019. Capital funding, authorized through 2023 by PL 111-11, has paid for extensive construction projects built with substantial non-federal cost-sharing (states' funds and Colorado River Storage Project power revenues) and federal appropriations.

ANNUAL FUNDS

Public Law 106-392, as amended, authorized expenditure up to $6 million of Colorado River Storage Project (CRSP) power revenues per year (adjusted annually for inflation) through fiscal year 2019 for annual funding of the recovery programs. Annual funding was authorized for facility operation and maintenance expenses, endangered fish population and habitat monitoring, and critically important nonnative fish management, public involvement, and program administration. For fiscal year 2019, these funds are provided by appropriation to the Bureau of Reclamation. Legislation has been introduced in Congress to extend this authorization for appropriated funds through fiscal year 2023.

The states, USFWS, water users and CRSP power customers contribute annual funding to both programs each year.

CAPITAL FUNDS

Capital funds have been used to construct hatchery facilities *(see page 8)***, fish passages and screens** *(see pages 16-17)***; complete water acquisition projects** *(see page 9)***; and restore floodplain habitat.**

Power Revenues Cost-Share

$17M of CRSP power revenues, have been provided by WAPA for capital construction projects. Consistent with P.L. 106-392, as amended, these revenues were treated as a non-federal contribution assigned to power for repayment under Section 5 of the CRSP Act.

States Cost-Share ($17 Million)

- **Colorado's** Legislature created a Native Species Conservation Trust Fund in 2000. Its "Species Conservation Eligibility List" is annually funded by a joint resolution of the State's General Assembly.

- **New Mexico's** Legislature appropriated 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.

- **Utah's** 1997 Legislature created a Species Protection Account within the General Fund which receives Brine Shrimp Royalty Act-created revenue. In 2000, Utah dedicated one-sixteenth of a one cent general sales tax to water development projects and directed funding to the Upper Colorado Program.

- **Wyoming's** Legislature appropriated its funding share during their 1998 and 1999 sessions.

Capital Construction Cost-Sharing for Upper Colorado and San Juan Programs

Upper Colorado Recovery Program	$179 million
San Juan Recovery Program	$30 million
Total	**$209 million***

***Sources of Revenue**

Federal	**Non-Federal**	
	Power Revenues:	$17 million
	States:	$17 million
	Water and Power:	$87 million**
		$121 million
Congress (Approps. in USBR's budget):		**$88 million**
	Total Revenue	**$209 million**

Capital Project Cost-Sharing by the States

	Total Amount	Upper Colorado Program	San Juan Program
Colorado	$9.15 M	$8.07 M	$1.08 M
New Mexico	2.74 M	None	2.74 M
Utah	3.42 M	3.42 M	None
Wyoming	1.69 M	1.69 M	None
Total	**$17.00 M**	**$13.18 M**	**$3.82 M**

** Contributions by water and power customers are recognized and credited as cost-sharing towards recovery in Section 3(c)(4) of P.L. 106-392. These costs have included water provided from Wolford Mountain Reservoir and the Elkhead Reservoir enlargement and costs of replacement power purchased due to modifying the operation of Flaming Gorge and Aspinall Unit Dams.

ColoradoRiverRecovery.org

Humpback Chub

Colorado Pikeminnow

Razorback Sucker

Bonytail

southwest.fws.gov/sjrip

Upper Colorado River Endangered Fish Recovery Program Partners:

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

Upper Colorado River Endangered
Fish Recovery Program
P.O. Box 25486, DFC
Denver, CO 80225
303-236-9881
303-236-8739 Fax
ColoradoRiverRecovery.org

San Juan River Basin Recovery Implementation Program Partners:

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

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Implementation Program
2105 Osuna Rd. NE
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505-761-4745
505-346-2542 Fax
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