swimming upstream

Winter 09

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

Endangered fish stocking programs in San Juan and Upper Colorado river basins show success

Hatchery-produced, genetically diverse stocked fishes are the basis of re-establishing naturally self-sustaining populations of Colorado pikeminnow and razorback sucker in the San Juan River, and of bonytail and razorback sucker in the Upper Colorado River system. The San Juan River Basin Recovery Implementation Program (San Juan Program) and the Upper Colorado River Endangered Fish Recovery Program (Upper Colorado Program) both implemented new stocking plans in 2003 to expedite re-establishment of wild populations and to achieve the demographic criteria required in recovery goals developed by the U.S. Fish and Wildlife Service. The recovery programs monitor survival and reproduction of stocked fish to evaluate and improve stocking strategies.

In the San Juan River

The San Juan River originates in the San Juan Mountains of southwestern Colorado and flows over 220 miles from Navajo Dam in northwestern New Mexico to Lake Powell in southeastern Utah. Razorback sucker and Colorado pikeminnow historically occurred in the San Juan River and much of the river has been designated critical habitat for these endangered fish species.

From the mid-1990s through the early 2000s, the San Juan Program conducted experimental stocking efforts to supplement remaining numbers of wild Colorado pikeminnow and razorback sucker in the San Juan River. During this experimental period, large numbers of juvenile and larval fishes were stocked. Data revealed that hatchery-reared fishes could survive, spawn and produce larvae, demonstrating that stocking was a feasible means to increase the numbers and range of these endangered fishes. Formal stocking plans were then developed to meet the sustainable population sizes set forth in the recovery goals.

To meet the goals, the San Juan Program works closely with Dexter National Fish Hatchery and Technology Center (Dexter) in New Mexico and Uvalde National Fish Hatchery (Uvalde) in Texas.

For Colorado pikeminnow, the stocking plan calls for 3,000 fishes at least 1 year old and 300,000 fishes less than 1 year old to be stocked each year in the San Juan River. Dexter fulfills the annual stocking goals for Colorado pikeminnow. To date, more than 2.6 million Colorado pikeminnow have been stocked.

For razorback sucker, the stocking plan calls for 11,400 fishes at least 12 inches long to be stocked annually. Dexter produces razorback sucker larvae and transfers enough fish to Uvalde to meet production requirements. Uvalde raises them to at least 12 inches then stocks them in the San Juan River. Dexter retains an additional 10,500 razorback sucker at the hatchery. When these fishes reach about 8 inches, they are transferred to Navajo Agricultural Products Industry (NAPI) ponds on the Navajo Nation in northwest New Mexico. When they reach 12 inches in size, they are stocked in the river to supplement the fishes from Uvalde.

To date, more than 58,000 razorback sucker have been stocked in the San Juan River.

CSU LARVAL FISH LABORATORY

COLORADO STATE UNIVERSITY LARVAL FISH LABORATORY BIOLOGIST CAMERON WALFORD WITH AN ENDANGERED RAZORBACK SUCKER CAPTURED ON APRIL 28, FROM THE YAMPA RIVER UPSTREAM OF DINOSAUR NATIONAL MONUMENT AT LILY PARK. THIS SPECIES HAD NOT BEEN SEEN IN THE LILY PARK REACH OF THE YAMPA RIVER FOR ALMOST 30 YEARS.

In the Upper Colorado River Basin

The Upper Colorado River Basin includes the Upper Colorado and Green rivers and their tributaries which flow throughout western Colorado, eastern Utah and southwest Wyoming. The Upper Basin was historically home to the humpback chub, bonytail, razorback sucker and Colorado pikeminnow. Many Upper Basin river sections have been designated critical habitat for these endangered fish species.

The hatchery-rearing and stocking program for razorback sucker and bonytail in the Upper Basin has evolved over the past 15 years, based initially on research needs and later on needs to raise and stock the endangered fishes. Initially, hatcheries were designed to maintain broodstock to create future generations of genetically sound fish. In the mid-1990s, hatcheries increased operations to produce various sizes of razorback sucker and bonytail for experimental stocking. The stocking plan was implemented in 2003.

For razorback sucker, the stocking plan calls for nearly 30,000 fishes, 12 inches or longer, to be stocked annually. They are produced at the Grand Valley Endangered Fish Facility in Grand Junction, Colo., and the Ouray National Fish Hatchery in Vernal, Utah. Since 2003, about 137,000 razorback sucker have been stocked in the Colorado, Gunnison and Green rivers.

NAVAJO NATION DEPT OF FISH AND WILDLIFE

U.S. FISH AND WILDLIFE SERVICE BIOLOGIST WESTON FURR (LEFT) AND NAVAJO NATION DEPARTMENT OF FISH AND WILDLIFE TECHNICIAN ALBERT LAPAHIE COLLECT DATA AND TAG RAZORBACK SUCKER BEFORE STOCKING IN THE SAN JUAN RIVER.

In spring 2009, researchers from Colorado State University's Larval Fish Laboratory captured a 17-inch, 1.7 pound, 7-year-old adult razorback sucker in the Yampa River near Lily Park, about seven miles upstream of Dinosaur National Monument in northwest Colorado. Service biologists stocked this hatchery-raised endangered fish as a 2-year-old juvenile in the Green River near the town of Green River, Utah, in 2004. During the next five years, it traveled 280 miles upstream and grew 6 inches.

"The last time I saw an adult razorback sucker in this section of the Yampa River was almost 30 years ago," said John Hawkins, CSU research biologist. "The capture of this fish confirms that razorback sucker are moving back into historic habitat. Hopefully, this razorback sucker will gather with others at spawning areas in the Yampa and Green rivers and contribute to recovery of the species."

Recaptures of stocked razorback sucker have increased in the Colorado, Green and Gunnison rivers of the Upper Basin. Stocked razorback sucker are surviving to sexual maturity, spawning and producing young.

Collections of razorback sucker larvae in the Green River have increased, and it was recently reported that larval razorback sucker were collected in the Gunnison River. Groups of spawning razorback sucker have been detected in reaches of the Upper Colorado River through Colorado's Grand Valley.

For bonytail, the stocking plan calls for nearly 16,000 fishes, 8 inches or larger, to be stocked annually to establish self-sustaining populations in the Colorado River and Green River subbasins. They are raised at the state of Utah's Wahweap Fish Hatchery in Big Water, and the state of Colorado's J. W. Mumma Native Aquatic Species Restoration Facility in Alamosa. Since 2003, 79,000 bonytail have been stocked in the Colorado and Green rivers.

"Although currently less successful than the razorback sucker stocking, we notice occasional glimmers of hope," said Tom Czapla, the Upper Colorado Program's propagation coordinator. "While working with some new remote sensing equipment in 2008, a bonytail entered the breach at the Stirrup

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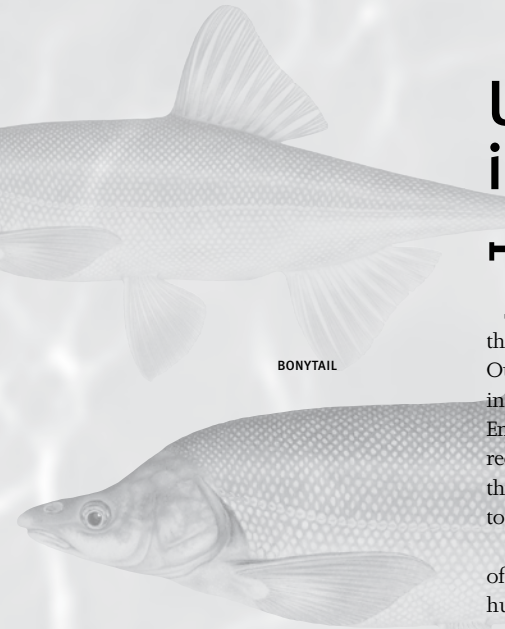
Estimating populations helps biologists gain a better understanding of fishes.

Ute Tribe takes a lead role to manage nonnative fishes in Green River and its tributaries



BONYTAIL

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The future looks brighter for endangered fishes in the Green River system due to efforts of the Ute Indian Tribe of the Uintah and Ouray Reservation. The tribe is working with the Upper Colorado River Endangered Fish Recovery Program to reduce nonnative fish populations in this river system that is considered vital to recovery of the endangered fishes.

The Green River is home to one of the six remaining populations of humpback chub and the largest populations of Colorado pikeminnow and razorback sucker. One of the last reported concentrations of bonytail was found in the Green River within Dinosaur National Monument.

Sections of the Green River and two of its tributaries, the Duchesne and White rivers, flow through lands owned and managed by the tribe. Tribal access to these river sections is critical to Recovery Program efforts to reduce nonnative fish populations in the Green River system.

"Smallmouth bass is the nonnative fish species of greatest concern in sections of the Green and Duchesne rivers where tribal lands are located," said Recovery Program Director Tom Chart. "Increased numbers of this fish threaten the survival of endangered and other native fishes. The tribe's assistance with nonnative fish management provides an important boost to our overall effort to reduce populations of this problematic species in the entire Green River system."

Since the late 1990s, the tribe has worked with the Recovery Program on a variety of projects to benefit the endangered fishes. These include conducting research to help prepare flow recommendations for the Duchesne River, helping to implement the flow recommendations and cooperating with the Recovery Program to screen an outlet at the tribe's Bottle Hollow Reservoir to prevent nonnative fishes from entering the Duchesne River.

In 2004, the tribe received a grant through the U.S. Fish and Wildlife Service's (Service) Tribal Landowners Incentive Program. The grant was used, in part, to develop a native fish management plan that includes nonnative fish management as one of the elements needed to maintain healthy native fish populations.

The tribe's concern with increased numbers of nonnative smallmouth bass in river sections within tribal boundaries led to submission of a proposal to the Recovery Program to work together to conduct nonnative fish management efforts.

"The tribe has always felt that it is important to respect and preserve all native species that occupy this earth," said Ute Tribe Fish and Wildlife Department Director Carlos Reed. "We are responsible for managing sensitive, threatened and endangered fish species that occupy tribal lands. We understood that the federal government had a successful program in place for this specific resource management, so it made sense to develop a relationship."

KELLY CAMBRIDGE

BIOLOGIST JAY GROVES (LEFT) AND BIOLOGICAL TECHNICIAN THOMAS WAPSOCK, UTE TRIBE FISH AND WILDLIFE DEPARTMENT, ON A NONNATIVE FISH REMOVAL TRIP IN DESOLATION/GRAY CANYON ON THE GREEN RIVER.

For the past two years, the tribe assumed the lead to remove smallmouth bass and gather data on native fish populations in sections of critical habitat in the Green River and its tributaries, in cooperation with the Utah Division of Wildlife Resources (UDWR) and the Service.

In 2008, work took place on the Green River through Desolation and Gray canyons. In 2009, efforts focused on 42 miles of the Duchesne River where, from May through October, biologists used a variety of electrofishing methods to net fish and collect data. A small amount of electric current placed in the water temporarily stuns fish and causes them to rise to the water's surface where biologists can net them and gather data. This work occurred during both high and low flows. An electrofishing barge helped biologists reach river sections previously inaccessible during low flows.

Although biologists reported few captures of endangered fishes, the numbers of adult and juvenile smallmouth bass captured were high enough to warrant repeating this effort in 2010. Work will expand to include smallmouth bass removal and native fish monitoring on the White River.

"This is the first time that the tribe has pursued a project of this magnitude," said Tribal Biologist Jay Groves. "We have two full-time biologists and four seasonals available to conduct the work.

"We appreciate the cooperation and assistance the tribe received from the U.S. Fish and Wildlife Service and the Utah Division of Wildlife Resources," he said. "Biologists Matt Breen with UDWR, and Mark Fuller with the Service, provided training and helped conduct this work. On our own, we do not have the resources to undertake a project of this size."

Colorado River Fishery Project Leader Dave Irving has developed high respect for the Ute Tribe during his many years of working with tribal members on a variety of projects.

"It's exciting to see the tribe expand its resources to include endangered fish recovery," he said. "The tribe allowed the Service to fulfill some of our trust responsibilities to help them identify methods and equipment needed to conduct this kind of work. At the same time, the tribe is helping the Recovery Program remove nonnative fishes in some of the most important river reaches to the endangered fishes in the Upper Colorado River Basin."

For more information, contact Jay Groves, 435-722-5511, ext. 4816, jayg@utetribe.com.

COLORADO PIKEMINNOW

JAY GROVES

WORKING TO REMOVE NONNATIVE FISH IN DESOLATION CANYON ON THE GREEN RIVER WERE (FROM LEFT): UTAH DIVISION OF WILDLIFE RESOURCES BIOLOGIST NATALIE MUTH, UTE TRIBE FISH AND WILDLIFE TECHNICIAN THOMAS WAPSOCK (TOWARD BACK), U.S. FISH AND WILDLIFE SERVICE BIOLOGIST MARK FULLER, UTE TRIBE FISH AND WILDLIFE TECHNICIAN KORY REED AND UTE TRIBE FISH AND WILDLIFE BIOLOGIST KELLY CAMBRIDGE.

Upper Colorado Program extended through 2023

Secretary of the Interior Ken Salazar, Colorado Governor Bill Ritter, Jr.; former Utah Governor Jon Huntsman, Jr.; Wyoming Governor Dave Freudenthal; and Western Area Power Administration Administrator Timothy Meeks renewed their commitment to a nationally recognized program that is working to recover endangered fishes in the Upper Colorado River Basin while water development continues in accordance with state and federal laws.

These leaders signed an extension during summer 2009 of a cooperative agreement for the Upper Colorado River Endangered Fish Recovery Program that will extend the program through 2023. The extension will ensure continued cooperative work to recover the endangered fishes while water development continues for agricultural, hydroelectric and municipal uses in the Upper Basin.

"This extension of the Recovery Program's cooperative agreement shows how far we've come in the last two decades," said Secretary Salazar. "When this program began 21 years ago, it was the first conservation initiative of its kind. Never before had such a broad group of state and federal agencies come together formally to work side-by-side with water users, power customers and environmental organizations. I commend all of the program's partners for developing creative and effective ways to meet the dual goals of endangered species recovery and water development."

The Department of the Interior recognized the Recovery Program with a Cooperative Conservation Award in 2008, citing the program's excellence in conservation through collaboration and partnership.

"Balancing the needs of the environment with the beneficial use of our state's water continues to be a challenge," said Colorado Governor Bill Ritter, Jr. "On the Colorado River, we are working to recover endangered fish while protecting water users and ensuring the state can develop its entitlements under interstate compacts."

"The agreement is an example of how an ongoing, highly successful cooperative program reflects the proper approach to providing endangered species conservation and recovery while concurrently working to resolve conflicts between endangered species recovery and the development and use of Compact-apportioned water resources in the Intermountain West," said Governor Dave Freudenthal of Wyoming.

"I am pleased to extend Western's participation in this worthwhile conservation effort," said Western's Administrator Tim Meeks. "Cost-based and clean, renewable federal hydropower is a critical and highly valued resource to our power customers who serve millions of consumers throughout the West. Through cooperation, we will continue to make progress on these fish recovery efforts in ways that enable Western to carry out our power marketing mission."

"The Upper Colorado River Endangered Fish Recovery Program is a mutually supported partnership," said Jon Huntsman, Jr., former governor of Utah, who signed the agreement in July shortly before leaving office to assume the position of Ambassador to China. "It is important to note that because of the cooperation between the partners, water development along the river has continued to proceed without a single lawsuit."

As a result of the cooperative effort, there are signs of recovery of the endangered fishes. Hatchery-raised, stocked razorback sucker are spawning in Upper Basin rivers and there is evidence that their larvae are surviving. Colorado pikeminnow and humpback chub populations fluctuate and in some cases are increasing. Stocked bonytail are being recaptured in several locations throughout the Green and Upper Colorado rivers.

Since 1988, the U.S. Fish and Wildlife Service has consulted on 1,703 projects depleting more than 2.3 million acre-feet of water per year in the Upper Basin. The Recovery Program provides Endangered Species Act compliance for these projects.

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

—Ken Salazar, Secretary of the Interior

Editor's note: The San Juan River Basin Recovery Implementation Program's cooperative agreement is also through 2023.

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HUMPBACK CHUB

Stocking programs show success

continued from page 1

floodplain and 13 more were captured during nonnative fish removal.

"In spring 2009, the equipment at Stirrup detected five bonytail, with an additional 35 bonytail collected in other projects."

Until recently, populations of Colorado pikeminnow and humpback chub in the Upper Basin have remained stable or increased and there has been no need to raise them in hatcheries. Recent downward trends in some humpback chub populations, however, have led the Upper Colorado Program to review the need to bring some of these fishes into a hatchery system to help supplement the population (see related article, "Grand Canyon Humpback Chub Fare Better," below).

Challenges in raising fishes

Raising endangered fishes in a hatchery is not easy. Water quality, bird predation and disease are some of the major issues that have challenged biologists.

Ouray and Mumma have experienced various water-related issues. At Ouray, high levels of the mineral manganese in the hatchery's well water led to fish mortality. This problem was solved with the addition of special water filters. Mumma experienced water temperature issues related to raising humpback chub and other *Gila* species. Cooler temperatures resulted in slower growth and had to be adjusted.

At Ouray and Wahweap, birds ate nearly a full year's worth of endangered fish that had been moved from the hatchery to growout ponds. Nets were later placed over the ponds to prevent this from reoccurring.

Uvalde addressed a largemouth bass virus that delayed the stocking of razorback sucker in the San Juan River until the hatchery passed annual fish health inspections. Fortunately, the virus did not affect the endangered fishes. The fishes were kept at the hatchery for two years which gave them additional time to grow. The hatchery has regained its clean fish health status and those larger fishes will be stocked later this year and early next year.

"We rely on our hatchery staff to troubleshoot a wide variety of issues related to raising endangered fishes and to handle the unexpected," Tom Czapla said. "These professionals are at hand 24 hours a day, seven days a week to ensure the safety of the fish in their facilities. We think they do a fantastic job."

Stocking success relies on other management actions

The success of the endangered fish stocking programs is enhanced by numerous integrated management actions. Both recovery programs share research to incorporate new findings and develop stocking strategies that lead to improved survival and retention of the endangered fishes.

The actions include habitat management to identify and provide adequate instream flows; habitat development to construct and operate fish passages and screens at diversion dams and to acquire and restore floodplain habitat; nonnative fish management to reduce the threat of certain nonnative fish species; and research, monitoring and data management to acquire data on the life-history of the endangered fishes and monitor fish populations to measure progress toward achieving the recovery goals.

Ultimately the stocking programs' success will be determined when the offspring of stocked fishes become a naturally reproducing population. The recovery programs' efforts will help ensure that these unique fishes continue to be an integral part of the Upper Colorado River system's fish community for generations to come.

For more information about the San Juan Program, contact Weston Furr, 505-342-9900, ext. 110, westonfurr@fws.gov or Scott Durst, 505-761-4739, scott_durst@fws.gov. For more information about the Upper Colorado Program, contact Tom Czapla, 303-969-7322, ext. 228, tom_czapla@fws.gov.

Stocking programs aim to reach demographic targets in recovery goals

The San Juan and Upper Colorado recovery programs rely on recovery goals to develop and implement management actions and measure success as they work to recover endangered fishes. The recovery goals provide objective, measurable criteria for downlisting to "threatened" and delisting (removal from Endangered Species Act protection).

In addition to achieving certain demographic criteria, other threats to the species must be minimized before the U.S. Fish and Wildlife Service will consider changing the status of the fish. The recovery goals describe actions to remove these threats. For more information, contact Tom Czapla, 303-969-7322, ext. 228, tom_czapla@fws.gov.

Project leader named for Colorado River Fishery Project Office

Michelle Shaughnessy brings enthusiasm and a broad range of experience with endangered species issues to the new role she assumed in September as project leader of the Colorado River Fishery Project Office in Grand Junction, Colo. In this position, she helps develop and implement research efforts and recovery actions for the endangered fishes.

Michelle's U.S. Fish and Wildlife Service (Service) career began in the Ecological Services' Environmental Contaminants Program at the Carlsbad Field Office in southern California. She later moved to the Endangered Species Program where she drafted recovery plans and worked with federal agencies on consultations and with private landowners to develop conservation bank agreements and habitat conservation plans. One of her main accomplishments was to help Riverside County, Calif., develop a landscape level multi-species habitat conservation plan for 1.3 million acres that included more than 100 bird, plant, animal and aquatic species.

Most recently, Michelle was the chief for the Branch of Recovery and Delisting in the Service's office in Washington, D.C., where she worked on budget recommendations, drafted regulations and policy, and processed regulatory documents associated with listed species.

Michelle served as project leader in the Colorado River Fishery Project offices in Vernal, Utah, in late 2008 and in Grand Junction in the spring of 2009, as part of the Service's advanced leadership training program. These assignments gave her a better understanding of the recovery programs.

COLORADO RIVER FISHERY PROJECT

PROJECT LEADER MICHELLE SHAUGHNESSY

"After working on recovery of listed species at the national level for the past several years, I am excited to get back into the field and apply my endangered species knowledge to implementing recovery on the ground for the endangered fishes in the Upper Colorado and San Juan rivers," Michelle said.

Michelle earned a bachelor's degree in zoology and completed several years of graduate work toward a master's degree in biology from California Polytechnic University in Pomona.

She can be reached at 970-245-9319, ext. 19, michelle_shaughnessy@fws.gov.

Editor's note: Previous project leader Chuck McAda retired in March 2009 after a 31-year career with the U.S. Fish and Wildlife Service. A past Recovery Program researcher of the year, Chuck made significant contributions toward understanding the life history of the endangered fishes and establishing management actions to help recover them. We wish him well.

UTAH DIVISION OF WILDLIFE RESOURCES

BIOLOGIST RON BRUNSON HOLDS A HUMPBACK CHUB FOUND IN WESTWATER CANYON ON THE COLORADO RIVER.

Grand Canyon humpback chub fare better than Upper Basin populations through recent drought

Six populations of humpback chub are known to exist — one in the Grand Canyon and five in the Upper Colorado River Basin. Adult endangered humpback chub in Grand Canyon, Ariz., increased by about 50 percent between 2001 and 2008, according to analysis conducted in early 2009 by the U.S. Geological Survey (USGS). The upward trend reverses population declines from 1989 to 2001. The estimated number of adult humpback chub in the Grand Canyon population is between 6,000 and 10,000, with the most likely number being 7,650 individuals. Several natural and human-caused changes took place between 2000 and 2008 that may have caused the rebound:

- The experimental removal of large numbers of rainbow trout and brown trout from the area near the confluence of the Colorado and Little Colorado rivers may have benefited humpback chub. Trout prey on young fishes and compete with humpback chub for food.
- Native fishes, including humpback chub, are thought to have benefited from drought-induced warming beginning in 2003. In 2005, water temperatures in the mainstem Colorado River near the Little Colorado River were the warmest recorded since Lake Powell filled in 1980.
- A series of experimental releases from Glen Canyon Dam took place between 2000 and 2008 that may have benefited humpback chub and other native fishes.

More information on humpback chub in the Grand Canyon is available: *Status and Trends of the Grand Canyon Population of Humpback Chub* fact sheet http://pubs.usgs.gov/fs/2009/3035/ and open file report http://pubs.usgs.gov/of/2009/1075/.

Upper Basin humpback chub populations

The Upper Colorado River Endangered Fish Recovery Program is working to recover five humpback chub populations in the Upper Basin. Current population estimates are:

- About 3,000 adults occur in the Black Rocks and Westwater Canyon core population in the Colorado River. Black Rocks shows recent declines.
- The Desolation/Gray Canyon population in the Green River has been declining.
- Populations in the Yampa and Cataract canyons are small, each consisting of up to a few hundred adults.

Recent studies show that humpback chub populations are stable or declining. The Desolation/Gray and Yampa canyon populations have declined to the point that captivity at a hatchery is necessary.

"Preliminary data showing a downward trend in these populations is reason for concern," said Recovery Program Propagation Coordinator Tom Czapla. "We are working to confirm the data, but the trends appear to be accurate. We need to identify the cause and take the appropriate actions to reverse that trend."

Downward trends in some humpback chub populations have been attributed to increased abundance of nonnative fishes and habitat changes associated with dry weather and low river flows.

Can humpback chub be raised successfully in a hatchery?

While researchers continue to look for answers to the possible cause of the population decline, the Recovery Program is in the second year of a research study to determine if humpback chub can be raised successfully in a hatchery. In late 2007, U.S. Fish and Wildlife Service (Service) and National Park Service biologists collected 400 young native chubs from the Yampa River in Dinosaur National Monument in northwest Colorado.

The state of Colorado's J.W. Mumma Native Aquatic Restoration Facility in Alamosa, Colo., and the Service's Ouray National Fish Hatchery in Ouray, Utah, each received 200 of the collected fishes. During the past two years, the fishes have thrived in the hatchery environment, demonstrating that this species can be raised if needed.

"Hatchery staff are working to confirm how many of the collected fishes are humpback chub versus another chub species, the roundtail chub," Tom said. "The hatcheries will keep the humpback chub as a safety measure to serve as broodstock should there be a need to raise and stock them in the future. The roundtail chub will be returned next spring to the rivers where they were collected.

"It is the Recovery Program's hope that humpback chub populations will rally in response to the program's efforts to manage spring and summer flows and to control nonnative fishes," Tom said. "Flows throughout the basin in 2008 and 2009 have been higher, and we are seeing some encouraging numbers of young chub in the Yampa and Cataract canyons."

For more information, contact Tom Czapla, 303-969-7322, ext. 228, tom_czapla@fws.gov.

The Navajo Nation and State of New Mexico celebrate San Juan River water rights settlement

—by John Leeper, Ph.D., P.E., Manager, Water Management Branch, Navajo Nation Department of Water Resources, and Member, San Juan Program Coordination Committee

The Navajo Nation and the State of New Mexico celebrated the historic San Juan River water rights settlement at a special event held May 26, 2009, hosted by the Navajo Nation Water Rights Committee on the banks of the San Juan River at the Nenahnazad Chapter.

This location, near the site of the San Juan Generating Station weir, is significant to the settlement. A few years ago, the San Juan River Basin Recovery Implementation Program retrofitted this weir with a fish passage to expand the habitat of the endangered Colorado pikeminnow and razorback sucker as part of the recovery effort for the two species. This location is also where the Navajo Gallup Water Supply Project will divert water from the San Juan River to tens of thousands of Navajos between the San Juan River and the City of Gallup. The San Juan Program provides Endangered Species Act compliance for the project.

At the ceremony, Navajo Nation President Joe Shirley stated, "It is a time to celebrate. The settlement has been a long time coming, and it didn't start with my administration. There were other presidents, other leaders who worked on this to bring it to fruition."

ALBERT LAPAHIE

SENATOR JEFF BINGAMAN OF NEW MEXICO ADDRESSED ATTENDEES AT A SPECIAL EVENT HELD TO CELEBRATE THE SAN JUAN RIVER WATER RIGHTS SETTLEMENT.

Senator Jeff Bingaman of New Mexico, who introduced the Omnibus legislation, said, "This is the culmination of a lot of work." He later noted, "It is also the beginning of a lot more work."

New Mexico State Engineer John D'Antonio addressed the crowd of more than 200, thanking numerous people who had made important contributions. The Navajo Nation Resources Committee Chairman George Arthur also addressed the crowd. He thanked the Congressional delegation for its hard work, and reminded them of the longstanding water development needs of the Navajo people. His committee played a central role in developing the settlement concepts. Also in attendance was Bureau of Reclamation Commissioner Mike Conner who played a major role in drafting the legislation that was successfully incorporated into the Omnibus Act.

After many decades of work, the Navajo Nation executed the settlement agreement with the state of New Mexico in April 2005. President Obama signed the Omnibus Public Land Management Act (Public Law 111-11) in March 2009, which authorized the implementation of the settlement. The settlement provides a guarantee of more than 600,000 acre-feet of water for the Navajo Nation from the San Juan River. The Act also authorizes the construction of the $870 million Navajo Gallup Water Supply Project, the development of conjunctive groundwater wells and rehabilitation of the Navajo irrigation projects along the San Juan River. The settlement also helps to protect the existing water users in the basin.

For more information, contact John Leeper, (928) 729-4004, johnleeper@navajo.org.

Burdick named outstanding researcher of the year

MICHELLE SHAUGHNESSY

RESEARCHER OF THE YEAR BOB BURDICK

U.S. Fish and Wildlife Service Biologist Bob Burdick is the Upper Colorado River Endangered Fish Recovery Program's Outstanding Researcher of the Year. Bob has worked with the endangered Colorado River fishes for his entire 30-year career. After earning a graduate degree in Wildlife Science from Utah State University, Bob became one of the first biologists with the Colorado River Fishery Project (CRFP) in Vernal, Utah, where his work included surveying fish populations in 425 miles of the Green and Yampa rivers.

In 1982, Bob transferred to the Grand Junction, Colo., CRFP office where he is a senior staff fish biologist. He is actively involved with conducting and evaluating nonnative fish management actions in more than 110 miles of the Upper Colorado and Lower Gunnison rivers. Bob oversees operation of fish passages on the Colorado and Gunnison rivers. He also ensures that all station field equipment is maintained, including electrofishing boats and rafts.

"Bob's research contributions are extensive," said Pat Martinez, Colorado Division of Wildlife biologist and past researcher of the year, who presented the award at the annual Upper Basin Researchers meeting in Grand Junction in January. "Bob performed the initial evaluation to determine the feasibility of using PIT tags to mark endangered fishes, validated minimum stream flows for the Lower Gunnison River, and developed a stocking plan for razorback sucker in the Upper Colorado and Gunnison rivers. He assessed post-stocking survival and distribution for hatchery-raised razorback sucker, surveyed fish populations in the Gunnison River and conducted a floodplain and bottomlands inventory of the Upper Colorado and Gunnison rivers. He also presented and published a surgical procedure to implant fish with radio transmitters at the International Symposium on Biotelemetry.

"Bob is a gearhead, a jack-of-all trades, with the mechanical aptitude to procure, maintain and deploy equipment," Pat said. "He's the go-to guy for emergencies, repairs, spare parts, or for research."

Bob expressed deep appreciation for the award. "This award is a validation that my participation, involvement and contributions toward protecting these four big-river fishes are appreciated and have been worthwhile," he said. "I do not exactly see myself as a true researcher but more of a hip boots and waders type of biologist. When I think of the past award recipients, I am honored and extremely pleased that you believe my contributions deserve recognition along with theirs. These native fishes need devoted advocates like yourselves if they stand a chance of surviving."

Recovery Program news and updates

UTAH DIVISION OF WILDLIFE RESOURCES

San Juan Program updates Web site and database

The *Documents and Reports* link on the San Juan Program's Web site is reorganized and updated at: http://www.fws.gov/southwest/sjrip/DR.cfm. New and previously missing documents appear under thematic headings.

Passive Integrated Transponder (PIT) tag information for Colorado pikeminnow and razorback sucker in the San Juan River is tracked in new databases for each species. PIT tags identify unique fish and enable researchers to study movement, abundance, survival and growth. The databases link stocking records to each recapture record to aid in data analysis and summary for scientific studies.

For information: Scott Durst, 505-761-4739, scott_durst@fws.gov.

DEBBIE FELKER

Muth named director of Bozeman Fish Technology Center

After nine years as the Upper Colorado Program's director, Bob Muth became the director of the Bozeman Fish Technology Center in Montana.

"While with the Recovery Program, it was rewarding to see the cooperation and dedication of so many individuals and organizations," Bob said. "I believe that species conservation can be achieved only through this type of cooperation. I offer my thanks to each individual for his or her commitment to this important effort."

Bob's work on behalf of the program is deeply appreciated and he is wished success in the future. He can be reached at 406-994-9902, robert_muth@fws.gov.

ANGELA KANTOLA

Clifton Sanitation hosts aquarium exhibit

Clifton Sanitation District (Clifton) established an educational exhibit with an aquarium that features razorback sucker provided by the Grand Valley Endangered Fish Facility.

Clifton provides wastewater service to customers in western Colorado. The facility recently underwent a multi-million dollar expansion and is developing a wetland area for wildlife. The Grand Valley facility offered suggestions for a pond design that may potentially be used as a growout site for razorback sucker.

The Colorado Division of Wildlife and the U.S. Fish and Wildlife Service had a significant role in making this exhibit possible.

For information: Logan Poisson, 970-434-7422, ext. 102, lpoisson@cliftonsanitation.com.

KARA LAMB

Reservoir operators coordinate releases for endangered fish

Upper Colorado River Basin reservoir operators voluntarily participated this year in the Coordinated Reservoir Operations (CROS) program. Under CROS, reservoir operators release water, when runoff conditions permit, to improve endangered fish habitat without affecting reservoir yields. They may also contribute water for late-summer, base-flow augmentation.

Combined releases in 2009 of 42,783 acre-feet were the highest since CROS began in 1995, compared with the average of 25,000 acre-feet. Participating reservoirs in 2009 were: Dillon, Green Mountain, Ruedi, Williams Fork, Willow Creek, Windy Gap and Wolford Mountain.

For information: Kara Lamb, 970-962-4326, klamb@gp.usbr.gov.

swimming upstream

Swimming Upstream **is a publication of the Upper Colorado River Endangered Fish Recovery Program and the San Juan River Basin Recovery Implementation Program. These programs are national models of cost-effective, public and private partnerships. The programs are working to recover endangered fishes while water development continues in accordance with federal and state laws and interstate compacts, including fulfillment of federal trust responsibilities to American Indian tribes.**

Debra B. Felker
Editor

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Water Development Interests

RAZORBACK SUCKER

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Program director's message

By Tom Chart, Program Director
Upper Colorado River Endangered Fish Recovery Program

I want to thank all who have contacted me to offer warm words of welcome during my recent transition from the Upper Colorado River Endangered Fish Recovery Program's nonnative fish coordinator to the role of program director. It means a lot to hear your support and it was fun to catch up with many of you.

I would also like to take this opportunity to thank my predecessor, Dr. Robert Muth, for all he did for the Upper Colorado Program during the past nine years. Bob's background was rooted in research of the Colorado River fishes. He devoted much of his career to the study of the ecology and early life history of many of our endangered species. Among his many accomplishments, Bob led a team of researchers to develop flow and temperature recommendations for the Green River below Flaming Gorge Dam.

Under Bob's supervision, relationships were fostered between the Upper Colorado Program and local water user groups resulting in a high level of cooperation to deliver the flows needed to help recover the endangered fishes. Although Bob did many things during his tenure with the Recovery Program, in a nutshell he promoted strong science as the cornerstone for sound programmatic decision-making and he will be greatly missed. I wish Bob and his wife, Susan, the best as they begin their new life in Bozeman, Mont. (see "News and Updates" on page 4).

I believe in the recovery programs' cooperative approach to endangered species conservation. Before moving to Colorado, I was an endangered species biologist in the U.S. Fish and Wildlife Service's Utah Ecological Services Field Station where I worked with biologists dedicated to benefiting the natural resource through the biological opinions they wrote. A common strategy was to seek cooperation from multiple interest groups and project proponents and then write forward-looking programmatic documents which were more protective of the ecosystem.

The Upper Colorado and San Juan recovery programs capitalized on this approach long ago by bringing stakeholders to the table, by identifying threats to the endangered fishes and actions to reduce those threats, and by securing funding to implement those actions. This simple construct is hard to beat when it comes to the complex task of recovering endangered big-river fishes.

The recovery programs have established a level of trust among their stakeholders that gives the programs the momentum to push through the difficult spots. The programs' track records are impressive and provide the conviction that we all need to stay on track. For example, today's water users and power customers seek flexibility within their own projects to provide the flows necessary to secure important habitats for the fishes. Historical habitats are reopened with fish passage structures. Large irrigation canals are screened to reduce the loss of native fishes. Nonnative fish management actions are implemented on a broad scale throughout the river systems, and a well-coordinated team of fish hatcheries provide the resources needed to re-establish or increase endangered fish populations.

Endangered fish recovery requires an unfaltering commitment from all of its partners. This commitment was demonstrated this year with partners working together to extend the Upper Colorado Program's cooperative agreement through 2023 (see related article on page 2). Non-federal program partners worked with members of Congress to increase capital funding through 2023 through passage of Public Law 111-11 on March 30, 2009. As the newsletter goes to press, they are working to secure annual funding through HR 2288 and S. 1453, which would ensure operations at current funding levels through 2023.

In closing, I am excited to work with the many interesting and dedicated people involved with the recovery programs, including my counterpart with the San Juan Program, Dave Campbell. We both appreciate the hard work and dedication of program partners, staff, volunteers and many others whose efforts continue to lead to our success.

JOANN PEREA-RICHMANN

Children learn about endangered fishes at Kids Fishing Day

ABOUT 75 CHILDREN, AGES 4-12, AND THEIR FAMILIES PARTICIPATED IN THE JEMEZ SPRINGS HATCHERY "KIDS FISHING DAY" IN AUGUST 2009. SPONSORED BY THE NEW MEXICO GAME AND FISH DEPARTMENT, THE EVENT PROVIDED AN OPPORTUNITY FOR SAN JUAN RIVER BASIN RECOVERY IMPLEMENTATION PROGRAM STAFF TO REACH OUT TO CITIZENS OF THE FUTURE AND EDUCATE THEM ABOUT ENDANGERED SPECIES, PARTICULARLY THE RAZORBACK SUCKER AND COLORADO PIKEMINNOW WHICH LIVE IN THE SAN JUAN RIVER. THE SAN JUAN PROGRAM PLANS TO PARTICIPATE IN THIS EVENT AGAIN NEXT YEAR.

Tom Chart named director for Upper Colorado Program

Tom Chart has been named director of the Upper Colorado River Endangered Fish Recovery Program. A fisheries biologist, Tom joined the Recovery Program staff in October 2007 as instream flow coordinator. In this role, he oversaw management of stream flows in accordance with agreements and guidelines established to help recover endangered fishes. He also coordinated efforts of state, federal and university biologists to manage nonnative fishes that threaten the survival of the endangered fishes.

Tom brings more than 26 years of experience working with native Colorado River fishes. Before joining the Recovery Program staff, he worked for the U.S. Fish and Wildlife Service's ecological services office in Salt Lake City, Utah, on projects to recover endangered fishes in the Colorado and Virgin River systems. Before that, he was a biologist for the Bureau of Reclamation in Salt Lake City. He also worked for the Utah Division of Wildlife Resources in Moab, Utah.

ANGELA KANTOLA

UPPER COLORADO PROGRAM DIRECTOR TOM CHART HOLDS A RAZORBACK SUCKER FROM BAESER BEND WETLAND BEFORE IT IS STOCKED IN THE GREEN RIVER IN NORTHEAST UTAH.

"Each of Tom's past positions has included involvement with the Recovery Program and its partners," said Steve Guertin, regional director, Mountain-Prairie Region, U.S. Fish and Wildlife Service and chairman of the Upper Colorado Program's Implementation Committee. "He is highly respected and will continue the long tradition of working cooperatively with partners within the Colorado River Basin to recover the endangered fishes."

"We are extremely fortunate," said John Shields, long-time chairman of the Upper Colorado Program's Management Committee and Wyoming interstate streams engineer. "Tom's extensive professional experience with endangered and other native fishes in the Colorado River and other southwestern river systems has uniquely prepared him for the challenges that this successful collaborative species conservation program addresses on a daily basis."

Tom holds undergraduate and graduate degrees in fish biology from Colorado State University in Fort Collins, Colo. He and his wife, Leslie, have two sons: Nate is a high school junior, and Seth attends graduate school at Montana State University.

Tom can be reached at 303-969-7322, ext. 226, tom_chart@fws.gov.

Cranney returns to the Green River

If someone told Steve Cranney he would be working as a summer seasonal 37 years after hiring on with the Utah Division of Wildlife Resources (UDWR), he might have decided to try a different profession. Nevertheless, for the last two years, Steve has been working as a technician for the Upper Colorado River Endangered Fish Recovery Program.

"Steve Cranney came to work for me the summer of 2008 as a field technician," said Leisa Monroe, native fish biologist, UDWR. "He has been invaluable out in the field. Steve brings many years of fisheries knowledge with him and this has helped us immensely when dealing with problems or issues we encounter on a daily basis on the Green River.

"He knows the river and the history of the various projects," Leisa said. "He also knows how the river used to be, when there were many more young-of-the-year Colorado pikeminnow and fewer nonnative fishes."

Steve was one of Utah's principle biologists researching the endangered fish of the Green River during the '80s and early '90s. "The challenges then were different than those today because there was almost no information on the fishes, their numbers, habitat preferences and life histories," said Ron Stewart, UDWR conservation outreach manager. "They also had to overcome the challenges the river presented. How do you study fish in a muddy river, which floods its banks in the spring and becomes a series of hidden sand and gravel bars in the summer?

"I was there the day they tested one new technique," Ron said. "Steve and his crew stole their wives' colanders (salad strainers) and bolted them together to form a couple of spheres. When they hooked them up to the generator, everything seemed to work — except, of course, the river. Their makeshift electrical spheres sank in a tub of water but floated when dropped into the muddy, flowing waters of the Green River. It took a bit of trial and error to get the size of the holes just right but when they did, they had found a much better delivery system for their electroshocking boats."

UTAH DIVISION OF WILDLIFE RESOURCES

STEVE CRANNEY CAME OUT OF RETIREMENT TO HELP WITH THE UPPER COLORADO PROGRAM'S NONNATIVE FISH MANAGEMENT EFFORTS.

Steve still brings his enthusiasm to work.

"His knowledge of the river, the projects, his professionalism and enthusiasm has been invaluable," said Trina Hedrick, UDWR native aquatics project leader.

"Steve comes to work every day with a positive attitude and his willingness to work helps motivate the other technicians," Leisa said. "I am glad he came out of retirement to help with our various projects. The knowledge he shares has helped us to become better biologists. He makes every day out on the river an enjoyable one!"

Population estimates help biologists gain better understanding of Colorado pikeminnow

ANN SUGIURA, U.S. FISH AND WILDLIFE SERVICE

U.S. FISH AND WILDLIFE SERVICE BIOLOGICAL TECHNICIAN LINDSAY LESMEISTER HOLDS A COLORADO PIKEMINNOW CAPTURED IN APRIL 2009 FROM THE COLORADO RIVER UPSTREAM OF THE NEW PRICE-STUBB FISH PASSAGE. THE 26-INCH, 6.7-POUND FISH TRAVELED AT LEAST 447 MILES DURING THE PAST 14 YEARS. THE WILD FISH WAS ORIGINALLY CAPTURED IN THE GREEN RIVER NEAR OURAY, UTAH, IN 1995.

The population of Colorado pikeminnow in the Upper Colorado and Gunnison rivers doubled between 1992 and 2005, increasing from 440 adults in 1992 to 890 in 2005, based on data released this year. Colorado pikeminnow populations in the Green River also appear to have recently increased from an earlier estimate.

U.S. Fish and Wildlife Service Biologist Doug Osmundson conducts Colorado pikeminnow population estimates to help evaluate Upper Colorado Program actions to recover the species.

"A 6.7-pound fish captured above the Price-Stubb Diversion Dam is one of many Colorado pikeminnow that we have documented moving among Upper Colorado River sub-basins since 1996," he said. "This movement is an important part of the species' life history. The fact that the Upper Colorado River system still provides unrestricted access to hundreds of miles of river habitat is critical to the recovery and long-term persistence of these populations."

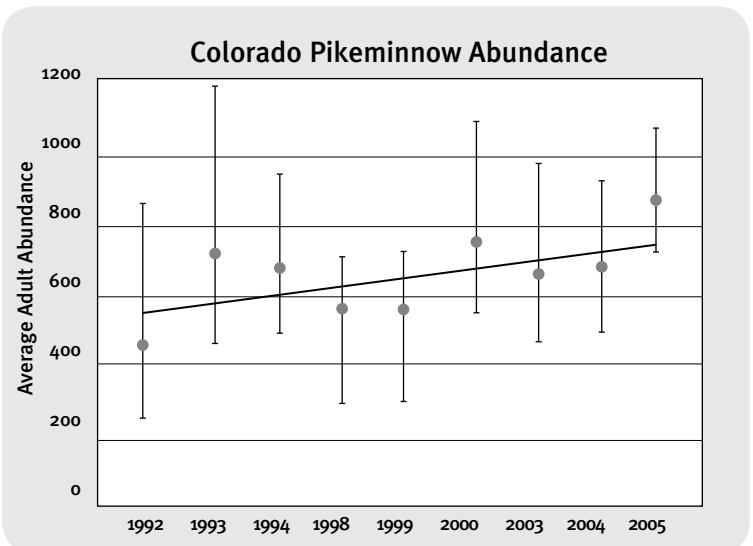
Estimating fish populations

It is not easy to identify the number of Colorado pikeminnow that live in more than 750 miles of muddy, often turbulent waters in the Upper Colorado River Basin. Osmundson began to use a mark-recapture technique in 1991 to obtain estimates of Colorado pikeminnow abundance in the Colorado River. The procedure was later adopted for use throughout the Upper Basin. It replaced an earlier catch-per-effort index that did not estimate the number of Colorado pikeminnow.

Estimating population size requires a reliable means of marking fishes. The best technology for doing this is a small, injectable Passive Integrated Transponder (PIT) tag, which researchers in the Upper Colorado Program began to use in 1991. PIT tags are implanted in fishes to allow scientists to follow them as they grow and move among habitats. The ratio of marked to unmarked fish allows biologists to calculate an estimate of the entire population size in a given year as well as to measure how precise the estimate is (confidence interval).

In the Colorado River, estimates made using this technique in 1991 were somewhat experimental. They were meant to determine whether or not the technique was sound, and they included only the upper reach from Price-Stubb Diversion Dam at Palisade, Colo., downstream to Westwater Canyon, Utah. Then, in 1992, the entire Upper Colorado River was sampled from Price-Stubb Dam to the confluence of the Green River — a distance of 190 river miles. The study design calls for estimates in three consecutive years, followed by two years off to rest the fish. Sampling for the latest estimates began in 2008 and will continue through 2010.

"Although we have seen a steady increase in the estimated numbers of adult Colorado pikeminnow in the Colorado River, we are still concerned because their annual survival rate declined from 88 to 80 percent during the latest sampling period which ended in 2005," Doug said.



Estimated average abundance and confidence intervals of adult Colorado pikeminnow in the Upper Colorado River system increased from 440 in 1992 to 890 in 2005.

Population estimates also show that younger, smaller fishes primarily occupy the lower reach of the Colorado River from Moab, Utah, to the confluence with the Green River, and that many of the large, adult fish occupy the upper reach from Westwater to Palisade. This confirms that habitat needs of this species change during its various life phases.

In the Green River

Estimates of adult Colorado pikeminnow began in 2000 in the middle Green River. In 2001, the lower Green River was added to include the remaining Colorado pikeminnow habitat for a total of about 500 sampled miles.

"During the 2000 to 2003 sampling period, estimates showed a decreasing trend in the Green River population of Colorado pikeminnow," said Dr. Kevin Bestgen, director, Colorado State University Larval Fish Laboratory, who led the Green River work for the Upper Colorado Program. "Although the data are still preliminary, the sampling period from 2006 to 2008 provides encouraging news. Data show increased numbers of adults captured, as well as higher recruitment."

Utah Division of Wildlife Resources researchers reported increased numbers of young Colorado pikeminnow and other native fishes in backwaters of the Green River during the summer and fall of 2009.

The final study results of Colorado pikeminnow estimates in the Green River are expected by the end of 2009.

For more information, contact Tom Czapla, 303-969-7322, ext. 228, tom_czapla@fws.gov.

In memory

DEBBIE FELKER

PAT NELSON

Pat Nelson, habitat restoration and nonnative fish coordinator for the Upper Colorado River Endangered Fish Recovery Program, died February 21, 2009, after a lengthy battle with brain cancer. Pat's 30-year career with the U.S. Fish and Wildlife Service included 20 years with the Upper Colorado Program where he worked to recover endangered Colorado River fishes. His many accomplishments included securing river habitat that will be kept in its natural state to benefit fish, plants and animals. He also worked to restore native fish populations by coordinating a team of investigators to manage nonnative fishes.

"Pat cared deeply about the world around him and he helped to make it a better place than he found it," said Upper Colorado Program Management Committee Chairman John Shields.

Pat served in the U.S. Air Force and was an avid hiker, fisherman, adventurer and world traveler. His passion was to tour primitive areas all over the world including Africa, Nepal, Tahiti, China, Mexico and South America.

To honor Pat's memory, a memorial bench featuring a silhouette of the Colorado pikeminnow was placed at Walter Walker State Wildlife Area along the Colorado River in Grand Junction, Colo., one of the many places where Pat worked to restore river habitat. The bench features a plaque inscribed:

We have to be the voice for animals who cannot speak for themselves.
Pat Nelson – 1948-2009
Whose work was dedicated to Colorado River conservation.
Pat's voice is greatly missed.

swimming upstream

Upper Colorado River Endangered Fish Recovery Program

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