swimming upstream

Winter 12

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

Questar funds remote sensing antenna on Utah's White River

Researchers have a new way to track endangered fishes in the White River in eastern Utah following last fall's installation of a 120-foot-long, 3-foot-wide remote sensing antenna. Researchers with the Upper Colorado River Endangered Fish Recovery Program joined representatives of Questar Pipeline Company and Biomark, Inc., to place the thermoplastic antenna on the bed of the river during low flows.

The antenna will operate year-round and use radio frequencies to capture the movement of fishes implanted with a passive integrated transponder (PIT) tag as they pass within 15-18 inches of the antenna's surface. A PIT tag is a small microchip in a glass capsule (about the size of a large grain of rice), like those placed in a dog or cat at a veterinary clinic for individual identification. The antenna will detect any endangered Colorado pikeminnow, razorback sucker, bonytail and humpback chub and some other native fishes that are PIT tagged. This will enable researchers to document fish movement and assist in their calculations of population size and survival rates.

The antenna will enable researchers to gather valuable information, while avoiding stress associated with repeated capture and release. In addition to the endangered fishes, the White River is home to large numbers of native flannelmouth and bluehead suckers, and roundtail chub, some of which have also been tagged.

"The White River, the second largest tributary to the Green River, is designated critical habitat for endangered fishes," said Upper Colorado Program Director Tom Chart. "Having the ability to detect them remotely and around the clock will help us measure the effectiveness of our management actions and our progress toward recovery. "

TOM CZAPLA, UPPER COLORADO PROGRAM

STATE, FEDERAL AND INDUSTRY REPRESENTATIVES SHARED THE HEAVY LIFTING TO CARRY ONE OF SIX 20-FOOT-LONG PIT TAG ANTENNA PANELS TO INSTALL IN THE WHITE RIVER.

Utah's Questar Pipeline Company's Mainline 103 Extension Project replaced about eight miles of older pipe with new 20-inch diameter pipe through a remote section of Weaver Canyon near the Utah/Colorado border. A portion of the pipeline project crossed the White River. Questar agreed to fund the $125,000 antenna project to offset potential impacts to endangered fishes and their habitat.

"Questar Pipeline is committed to conducting all of its operations in an environmentally responsible manner," said Allan Bradley, Questar Pipeline president and CEO. "Because this project crosses the White River, which is home to endangered fish species, we're excited to be able to help contribute to the important work the Fish and Wildlife Service is doing to protect threatened wildlife and promote a healthy and sustainable environment."

"Questar Pipeline showed a strong environmental stewardship ethic during the discussions concerning the Mainline 103 pipeline project and the PIT tag reader," said U.S. Fish and Wildlife Service Ecologist Kevin McAbee who coordinated the project on behalf of the Upper Colorado Program. "We commend Questar Pipeline for looking for new, innovative ways to help native fish conservation and for their financial support. As more PIT tag readers are installed and operated throughout the Upper Colorado River Basin, our knowledge of native fishes will be greatly bolstered."

The Utah Division of Wildlife Resources (UDWR) and U.S. Fish and Wildlife Service offices in Vernal, Utah, will operate and maintain the antenna, including data retrieval. Detections of endangered fishes will be provided to the Upper Colorado Program to create a more complete picture of Upper Basin endangered fish populations. Detections of non-listed native fishes will be provided to UDWR and other agencies working to conserve populations of the native suckers and chub.

The Upper Colorado Program previously installed similar detection devices at the Price-Stubb Diversion Dam on the Colorado River and the Maybell Ditch, a 12-mile-long irrigation canal on the Yampa River in western Colorado.

For more information, contact Kevin McAbee, 801-975-3330, ext. 143, kevin_mcabee@fws.gov, or Steve Chapman, 801-324-5548, steve.chapman@questar.com.

Editor's note: During its first month of operation, the antenna had 441 detections representing 67 individual fishes — 50 flannelmouth sucker, seven Colorado pikeminnow, six bluehead sucker and four roundtail chub.

Antenna installed on McElmo Creek

A passive integrated transponder (PIT) tag antenna was installed in May 2012 at the mouth of McElmo Creek on the San Juan River within the Navajo Nation near the Colorado/Utah border. The Bureau of Reclamation completed the installation with cooperators from the Navajo Nation, U.S. Fish and Wildlife Service (Service), Kansas State University, Utah State University, Biomark Inc. and the San Juan River Basin Recovery Implementation Program.

The antenna will operate year-round. Radio frequencies will capture the movement of any fishes, including Colorado pikeminnow and razorback sucker, implanted with a PIT tag as they pass within 15-18 inches of the antenna's surface.

"The goal of this work is to quantify the timing and frequency of fish movement between the San Juan River and its tributaries as it relates to fish community structure and ecological linkages such as temperature, discharge and season," said Bureau of Reclamation Researcher Mark McKinstry, who oversaw the installation.

The system consists of five antennas, a solar power unit, a data storage device and a modem to transmit the data. Using this system, researchers have a new way to track the presence and movement of endangered fishes at the inflow area.

SHARON WHITMORE, SAN JUAN PROGRAM

PETER MACKINNON OF BIOMARK, INC., MEASURES THE NEWLY INSTALLED REMOTE PIT TAG ANTENNA NEAR THE MOUTH OF MCELMO CREEK.

The system was installed in response to last year's discovery of Colorado pikeminnow being captured over 20 miles upstream of the confluence in McElmo Creek and Yellow Jacket Creek, a tributary to McElmo Creek. Between May and mid-August 2012 the system detected a total of 118 Colorado pikeminnow and razorback sucker moving past that location in the creek.

In addition to the endangered fishes, the San Juan River is home to large numbers of native flannelmouth and bluehead suckers, and roundtail chub, some of which have also been tagged and are using the creek and inflow area.

Charles (Nate) Cathcart, a graduate student from Kansas State University who worked on the project, noted that when irrigation season starts, a pulse of fishes seems to move upstream in the creek and the fishes may be using the area to spawn. Nate has also used mobile PIT tag antennas in McElmo Creek and other tributaries to the San Juan River to quantify movement of fishes in those streams.

More antennas on the way

In addition to the site at McElmo Creek, the San Juan Program plans to construct three more PIT tag antenna systems in the San Juan River. One will be installed at the Public Service Company of New Mexico Fish Passage Facility and Weir in December to detect fishes that move downstream past the weir or attempt to move upstream but do not use the passage facility.

A second antenna will be placed at the Hogback Diversion Dam to detect fishes that may become trapped in the canal by moving past a new weir wall that is being installed.

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“Larval trigger” flows for Green River razorback sucker

By Dave Speas
Fish Biologist
Bureau of Reclamation

As part of razorback sucker recovery, flow recommendations for operation of Flaming Gorge Dam in northeastern Utah are intended to provide larval razorback sucker with access to Green River floodplain wetlands. These habitats provide fish with better conditions for their growth and survival than the swifter, cooler mainstem river. Until recently, researchers believed that timing spring peak releases from the dam to coincide with, and augment, Yampa River peak flows would provide wetland access for drifting larvae that are present in the Green River.

A 2011 study showed that this strategy connected floodplains before most larval fishes were present in the system. Also, since dam peak releases were of limited duration, wetlands often disconnected due to declining flows while larvae were still emerging. To maximize overlap between periods of drifting larvae and wetland connection, the study recommended using appearance of larval fishes as a trigger to release peak flows from the dam rather than timing releases to Yampa River peak flows.

As spring runoff approached in 2011, the Upper Colorado River Endangered Fish Recovery Program requested that the Bureau of Reclamation experiment with “larval triggered” releases in response to this new information. During the next year, the 2011 study was approved as final and the Upper Colorado Program developed a multi-year study plan to evaluate larval triggered releases over a range of hydrologic conditions.

In 2011, a very wet year, the period of floodplain connection overlapped with larval fish presence for a longer period of time than had been observed in the previous 19 years. Wetland sampling during fall 2011 indicated that some of these larvae had survived their first summer, a rare and important observation. Such wild, young-of-year razorback sucker are a critical component to population stability. Their occurrence following a high spring peak flow may provide clues to the extent of water needed in floodplains to increase population size.

UTAH DIVISION OF WILDLIFE RESOURCES

UTAH DIVISION OF WILDLIFE RESOURCES TECHNICIAN IAN HARDING RETRIEVES LIGHT TRAPS USED TO DETECT RAZORBACK SUCKER LARVAE IN STEWART LAKE.

Wetland sampling during fall 2011 indicated that some of these larvae had survived their first summer, a rare and important observation. In contrast, 2012 proved to be exceedingly dry.

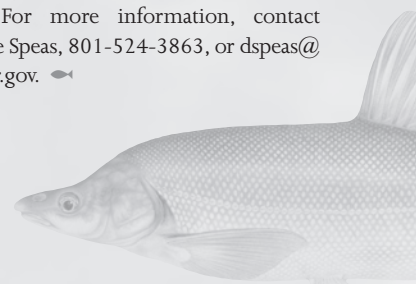
In contrast, 2012 proved to be exceedingly dry. On May 16, biologists detected larvae at several locations along the Green River, including openings into Stewart Lake near Jensen, Utah. The study plan identified Stewart Lake as a primary study wetland during dry years since it connects to the Green River at relatively low flows of 8,000 to 10,000 cubic-feet-per-second (cfs).

Targeting these flows, Reclamation hydrologists quickly ran calculations and found that bypass flows from Flaming Gorge Dam combined with Yampa River flows, could connect Stewart Lake for a few days while still meeting reservoir objectives. Reclamation increased flows on May 19, and water containing razorback sucker larvae began to flow into Stewart Lake as the spring peak flow approached 10,500 cfs on May 25.

Despite everyone’s best efforts, spring peak volumes proved insufficient to fill most wetlands to levels that would support larvae through the brutally hot and dry summer months that followed. Many habitats dried up by mid-summer. Still, implementation of larval trigger flows in 2012 was considered a success due to stellar real-time coordination between field biologists and Reclamation staff, whose decision to release up to 7,790 cfs from the dam — impressive for a dry year — was rapid and well-informed. Thanks to careful on-the-ground monitoring, detection of larval razorback sucker in wetland habitats was verified.

Biologists gained valuable information about the effects of larval trigger flows on razorback sucker during extremely wet (2011) and dry (2012) conditions. Upper Colorado Program managers, likewise, learned valuable lessons about the challenges of implementing larval trigger flows, particularly under extremely dry conditions. Results of future experimentation will help researchers understand the role of larval trigger flows in the recovery of razorback sucker and help refine management strategies as needed.

For more information, contact Dave Speas, 801-524-3863, or dspeas@usbr.gov.



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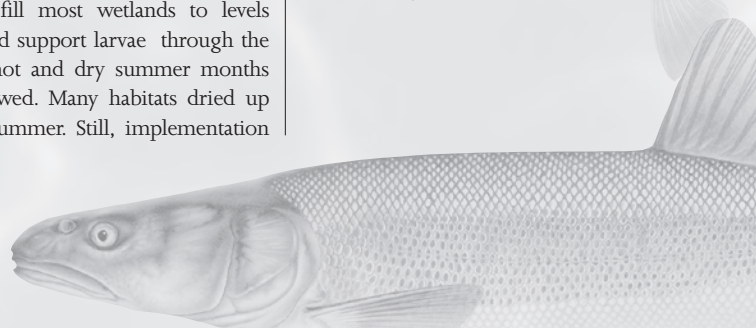

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San Juan River razorback sucker collected in Lake Powell

COLORADO PIKEMINNOW

By Travis Francis and Dale Ryden
U.S. Fish and Wildlife Service Biologists

The endangered razorback sucker was documented as a member of the San Juan River’s native fish community in 1988. By the early 1990s, the wild population had essentially disappeared from the mainstem San Juan River. To help recover the species, the San Juan River Basin Recovery Implementation Program began a stocking program in 1994. With the exception of 1999, razorback sucker have been stocked in the San Juan River every year.

From the first stocking, it was recognized that stocked razorback sucker moved downstream into the San Juan River arm of Lake Powell in southeastern Utah. This portion of Lake Powell is extremely remote and has received little attention through biological surveys compared with other nearby rivers in the Upper Colorado River Basin. Historically, it was unknown if razorback sucker lived in this area of the lake.

MARK McKINSTRY, BUREAU OF RECLAMATION

UTAH DIVISION OF WILDLIFE RESOURCES BIOLOGISTS JESSICA PIERSON (LEFT) AND AMBER KING CAPTURED THIS RAZORBACK SUCKER DURING MONITORING IN THE SAN JUAN ARM OF LAKE POWELL.

The San Juan River population of razorback sucker extends about 35 miles downstream into Lake Powell to Neskahi Canyon. This portion of Lake Powell is part of designated critical habitat for razorback sucker in the San Juan River Basin. At low lake levels the river flows over a dam, forming a waterfall that separates the lake from the San Juan River. Since 2002, the dam has been tall enough (as high as 25 to 30 feet) in most years to prevent fishes from moving upstream. This dam fluctuates in height as lake levels change.

In 2011, the San Juan Program launched a two-year study to determine how many razorback sucker exist in the San Juan arm of Lake Powell and if these razorback sucker are reproducing in the lake. From April to June this year, researchers from the Utah Division of Wildlife Resources and the U.S. Fish and Wildlife Service collected fishes on 22 miles of Lake Powell from Neskahi Canyon upstream to Nokai Canyon. Low lake levels this year exposed large sand bars that spanned the entire arm of the lake. This prevented researchers from sampling approximately seven miles of lake between Nokai Canyon and the waterfall on the San Juan River near Piute Farms.

During 2012, researchers captured and released 72 razorback sucker, ranging from 18 to 24 inches in length (75 razorback sucker were collected in 2011). Upon capture, razorback sucker were checked for a passive integrated transponder (PIT) tag. Of the 72 fishes captured, 44 (61 percent) were tagged. Unmarked fishes were tagged and returned to the lake. Three of these fishes had been captured in the lake without a PIT tag in 2011. The remaining 41 fishes had been stocked with PIT tags in the San Juan River prior to 2012. The 28 razorback sucker captured without PIT tags are of unknown origin.

In addition to the 72 razorback sucker captured in 2012, one Colorado pikeminnow was captured and released. This Colorado pikeminnow likely came from stocking efforts in the San Juan River at or upstream of Shiprock, N.M. Other native fishes collected included one bluehead sucker and 72 flannelmouth sucker.

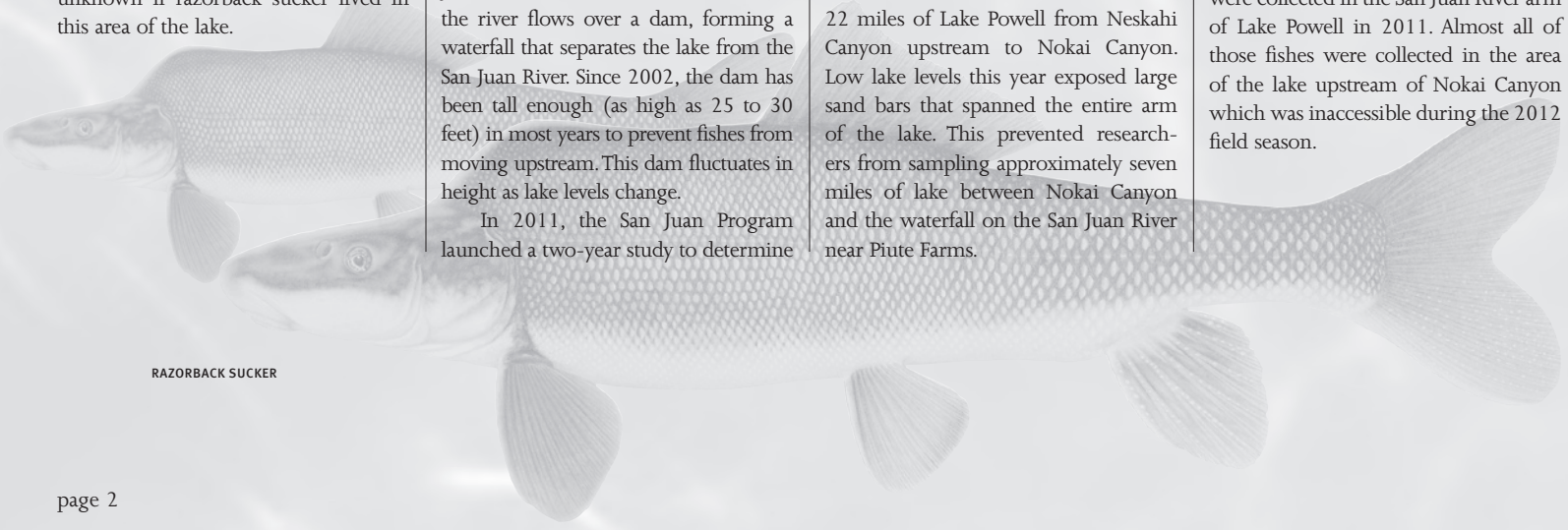
A total of 24 Colorado pikeminnow were collected in the San Juan River arm of Lake Powell in 2011. Almost all of those fishes were collected in the area of the lake upstream of Nokai Canyon which was inaccessible during the 2012 field season.

In 2011, one larval razorback sucker was collected in Lake Powell in a bay far downstream of any river current influence, indicating successful spawning of razorback sucker in the lake. Unfortunately, no larval razorback sucker were collected during 2012. In both years, the age* of some of the fishes of unknown origin did not match any previous stocking event in the San Juan River. This suggests these fishes could have spawned and grown up in the lake. If razorback sucker are completing their life cycle in this lake/river transition zone, this is important new information.

In 2013, San Juan researchers will try to validate what their aging technique suggests by chemically analyzing scales collected from the same fishes. The chemical analysis will help researchers understand where these fishes spawned. Encouraging results from the past two years indicate there is a razorback sucker population in the San Juan arm of Lake Powell that may help contribute to the recovery of this species.

For more information, contact Travis Francis, 970-245-9319, ext. 15, travis_francis@fws.gov.

** Researchers can age fishes by counting annual concentric growth rings found on fish scales or in this case by looking at cross sections of fin rays.*



RAZORBACK SUCKER

San Juan River restoration project benefits endangered fishes

U.S. FISH AND WILDLIFE SERVICE

U.S. FISH AND WILDLIFE SERVICE BIOLOGIST BOBBY DURAN HOLDS AN ENDANGERED COLORADO PIKEMINNOW COLLECTED FROM THE SAN JUAN RIVER.

Six miles of critical habitat for endangered Colorado pikeminnow and razorback sucker along the San Juan River were restored this year thanks to a $400,000 grant from the New Mexico Environment Department's River Ecosystem Restoration Initiative. The Nature Conservancy administered the funds and coordinated restoration activities with the Navajo Nation, the Bureau of Reclamation, the U.S. Fish and Wildlife Service and the San Juan River Basin Recovery Implementation Program.

Restoration involved reconnecting secondary channels to the river's main channel and removing nonnative tamarisk and Russian olive vegetation to create backwater habitat for the endangered fishes. Work occurred at six key reaches of the San Juan River between the Hogback Diversion Dam and the New Mexico-Colorado state line on the Navajo Nation in New Mexico.

"Backwater habitat provides a safe haven for young fishes by providing shallow, warm, slow-moving water that allows fishes to feed, grow and escape nonnative predators," said San Juan Program Director Dave Campbell. "This is important to the fishes' life cycle."

The installation of Navajo Dam and other water projects along the river changed the timing and amount of river flows. Over time, the San Juan River became narrower, less complex and more channelized as nonnative vegetation expanded. This caused backwater habitats to become disconnected from the active river. Since then, Reclamation, water users and power customers have worked with the San Juan Program to time water releases from Navajo Dam to meet flow recommendations that will benefit the endangered fishes while meeting the water and hydropower needs of southwestern communities.

"This restoration project would not have been possible without the funding from the State of New Mexico and the cooperation of all parties involved," Campbell said. "Work was completed this spring and we will evaluate the functionality of the restored sites over the next year as they become exposed to a full year of peak and base flows. This information will be used to assess how the sites are functioning and to identify additional locations and techniques for restoring additional sites."

The San Juan River habitat restoration project was recently highlighted by the Department of the Interior's Great Outdoors River Initiative as a model for cooperative efforts by federal, tribal and state agencies to recover endangered fishes while water development proceeds.

"As a partner to the San Juan Program and an organization committed to restoring and protecting healthy river ecosystems, we welcomed the opportunity to coordinate this project," said Patrick McCarthy, former director of conservation programs for The Nature Conservancy in New Mexico. "We know that restoring river habitat is ongoing and takes shared commitment and resources to accomplish. We appreciate the opportunity to work with others to achieve our mutual goals."

SHARON WHITMORE, SAN JUAN PROGRAM

A RECENTLY RESTORED SIDE CHANNEL ALONG THE SAN JUAN RIVER ON THE NAVAJO NATION IN NEW MEXICO IMPROVED HABITAT FOR ENDANGERED COLORADO PIKEMINNOW AND RAZORBACK SUCKER.

Editor's Note: Patrick McCarthy was named director of conservation for The Nature Conservancy's Colorado River Program in September. In his new role he will lead the Conservancy's native species and ecosystem conservation strategy, including work with the Upper Colorado and San Juan recovery programs. He can be reached at 505-310-2117, pmccarthy@tnc.org.

Antenna on McElmo Creek

continued from front page

The wall will reduce mortality of endangered fishes and larvae that may become trapped in the canal. The third antenna system will span the San Juan River at Mexican Hat, Utah, to detect fishes that are moving upstream and downstream of this location.

The construction of these antenna systems marks a historic point in the monitoring of endangered fishes in the San Juan River Basin since this is the first time that remote-detection has been used to detect fishes in this system. The antennas will enable researchers to gain valuable insight into the movement patterns of tagged endangered and other native fishes and eliminate the stress associated with repeated capture and release.

The Service, through the San Juan Program, will operate and maintain the antenna systems. Detections of endangered fishes will provide the San Juan Program with a better picture of endangered fish populations.

For more information, contact Mark McKinstry, 801-524-3835, mmckinstry@usbr.gov.

the fisheye:

Honky-tonk Harry, the conservation biologist

Harry Crockett is the native aquatic species coordinator for Colorado Parks and Wildlife (CPW) and actively involved in both the Upper Colorado and San Juan recovery programs. He shares his musical side for The Fisheye, a series about interesting people involved with endangered fish recovery.

Describe your work. *I represent Colorado on the Biology Committees of both recovery programs as well as a number of multi-agency conservation teams. I do conservation planning and internal coordination for state species of concern. I also try to secure funding for deserving projects and make it available to biologists in the field.*

Why did you choose to be biologist? *I always wanted to be a biologist. My parents were great lovers of nature. My mother, especially, is an accomplished amateur naturalist, and both parents took us kids fishing starting practically the day I was born. I went to college at the University of Kansas thinking I'd major in biology, but I got interested in some other subjects and wound up doing un-biologist things for quite a while. I'm so grateful to my major professor at Colorado State University, Dr. Brett Johnson, who took a chance on a non-traditional student and gave me the opportunity to earn a master's degree in aquatic ecology.*

Describe your role with the band, Truckers' Daughter. *I have been in one band or another for years, but my current and longest-running gig is with Trucker's Daughter. It's my wife, Michele's, band, which makes me difficult to fire. My late father-in-law was a truck driver, a cattle hauler. I play fiddle and do harmony and lead vocals. I also play some guitar but seldom on stage — there are always better guitarists around than me.*

What type of music do you play? *We play honky-tonk. Michele writes really good original songs and we mix those up with obscure songs by well-known artists or by songwriters who have also written hits. We sprinkle in some classics here and there, too. Lately we've been going without drums as a four-piece — upright bass, Telecaster (an electric guitar made by Fender with a distinctive twang), fiddle and lead vocal/acoustic. Sometimes we have a guest on mandolin or steel. Our gigs are mostly about dancing, but having our own sound and material keeps us engaged and enthusiastic.*

COURTESY OF HARRY CROCKETT

HONKY-TONK SINGER AND MUSICIAN HARRY CROCKETT: A RISING "WESTERN STAR"

What do you enjoy most about being in a band? *Playing with really good musicians. Fort Collins, Colo., has a renowned music scene with a lot of folks around who are truly exceptional musicians and also great people. It's hugely rewarding to get to be part of that in a small way without having to make a living of it.*

Describe your most interesting experience with the band. *There are different kinds of interesting. Being threatened with death by a knife-wielding drunk was "interesting." (We were sound-checking and fighting guitar feedback. I guess it really bothered him.) Another band I was in was supposed to open for a former big name performer who could have been the inspiration for the character of Bad Blake in the movie "Crazy Heart." He was a huge talent who sold several million records but squandered it all by self-destructive behavior. There was a big crowd and he showed up without a band so we were drafted on the spot and faked the whole gig. People seemed to like it.*

What would make a good lyric for a song about endangered fishes? *I don't have enough discipline or creativity to write lyrics. To me a good lyric opens up something more — some new possibility in a story you're telling, or new resonance in a mood you're trying to capture. "Razorback" is evocative — it has a gritty, survivor-type feel echoed by other connotations of the word — rock formations, wild animals. You could work with that. "Pikeminnow" (the word, not the fish) doesn't seem to transcend itself that way; it just is what it is. "Bonytail"… never mind….*

For more information, visit www.truckersdaughter.net or find the band on Facebook. Harry can be reached at 970-472-4339, harry.crockett@state.co.us.

New procedures improve stocked fish survival

Uvalde National Fish Hatchery (Uvalde NFH) in southwest Texas has been providing stocked razorback sucker for the San Juan River Basin Recovery Implementation Program since 2006. A recapture analysis of stocked fishes in 2011 showed a lower-than-expected number of razorback sucker recaptures in the San Juan River that originated from Uvalde.

Concerned researchers and hatchery managers suspected this low number might be caused by stress associated with the long hauling distance from the hatchery to the San Juan River, high densities of fishes in transport trucks, or differences in water chemistry between the hatchery and the river. Uvalde NFH made it a high priority to identify and resolve these issues to ensure that the survival rate of Uvalde-stocked razorback sucker improves.

This year, Uvalde NFH significantly reduced handling and hauling-related stressors. Biologists placed passive integrated transponder (PIT) tags in the razorback sucker in the spring, when the fishes are harvested for inventory at the hatchery, rather than in the fall before stocking. The tagged fishes were placed back into hatchery ponds where they continued to grow throughout the summer. This new procedure eliminated one potentially harmful stressor to the fishes before they were stocked.

To address potential hauling density issues, beginning in 2011, Uvalde NFH staff experimented with hauling razorback sucker at lower densities than in the past. Once all the fishes were placed into a distribution truck, the tank water was completely exchanged with fresh well water. The water temperature was slowly reduced to more closely match that of the river's water.

Once the razorback sucker arrived at their stocking site, they were slowly acclimated to the receiving water temperature and transferred to a soft release site (a holding pen that is out of the river's heavy flows and where predators had been removed). The fishes were held there and monitored by the U.S. Fish and Wildlife Service's New Mexico Fish and Wildlife Conservation Office (NMFWCO) staff for a minimum of 24 hours before being released into the river.

U.S. FISH AND WILDLIFE SERVICE

U.S. FISH AND WILDLIFE SERVICE BIOLOGISTS SET UP AN ENCLOSURE IN THE SAN JUAN RIVER FOR A SOFT RELEASE OF RAZORBACK SUCKER RAISED AT UVALDE NATIONAL FISH HATCHERY.

"These changes in stocking procedures have already shown positive results," said U.S. Fish and Wildlife Service Biologist Jason Davis. "Preliminary capture data collected in 2012 indicates that we are picking up more Uvalde NFH razorback sucker than we have seen in the past."

During the fall of 2011, Uvalde and NMFWCO stocked 4,713 razorback sucker in portions of the river that are regularly sampled. Through August 2012, a total of 191 razorback sucker that originated from these stockings were recaptured. These Uvalde recaptures represent 19 percent of all razorback sucker captured in 2012. Additional sampling was completed this fall and preliminary analysis indicates that this total will likely increase.

"These return rates are very encouraging," Davis said. "It's still early, but it appears that some of the recent changes implemented at Uvalde have yielded positive results for the species. Improving retention of stocked fishes in the river and their survival will be an important step toward recovery of this species in the San Juan River Basin. The next step is having these fishes successfully spawn and produce wild offspring that survive and become part of the adult population."

For more information, contact Sharon Whitmore, 505-761-4753, sharon_whitmore@fws.gov.

Southern Ute students study endangered fishes

Tribal students in southwest Colorado are learning about endangered fishes and their river habitat through a "Fish in the Classroom" program developed in 2008. The program is a collaborative effort between the Southern Ute Indian Montessori Academy and the Southern Ute Wildlife Division.

"This is an environmental education program in which students raise fishes through various life stages," said Southern Ute Wildlife Technician Jon Broholm who spearheads the program. "Students study stream habitat and gain an understanding of ecosystems and water resources. They also develop a conservation ethic."

Endangered Colorado pikeminnow, on loan from Southwest Native Aquatic Resources and Recovery Center in Dexter, N.M., swim in a classroom aquarium where students are responsible for their care. The students feed the fishes and monitor water quality. In addition to maintaining the aquarium, students take field trips that include stocking fishes and helping restore river and pond habitat.

"This is a great hands-on learning experience," said Sharon Whitmore, assistant director of the San Juan Program. "Unlike other wildlife species, we seldom get to observe fishes in the wild. Not only do the students get to watch the fishes on a daily basis and learn what they need to survive; they learn it is their responsibility to protect these and other species in the future."

For more information, contact Jon Broholm, (970) 563-0130, jbroholm@southernute-nsn.gov.

JEREMY WADE SHOCKLEY, THE SOUTHERN UTE DRUM

STUDENTS FROM THE SOUTHERN UTE INDIAN MONTESSORI ACADEMY FEED ENDANGERED COLORADO PIKEMINNOW IN THEIR CLASSROOM AQUARIUM.

Pitts earns NWRA lifetime achievement award

The National Water Resources Association (NWRA) honored Tom Pitts with a Lifetime Achievement Award at its 81st Annual Conference in Coronado, Calif., in November.

Presented since 1948, this award recognizes members for service to the western water community. Pitts has been actively involved in NWRA for many years, and has chaired its Environmental Committee since 1991. NWRA recognized Pitts for his outstanding contributions to the multi-purpose development of the water resources of the 17 western states that the Bureau of Reclamation serves.

"Tom has 45 years of experience in environmental permitting and assessment of water and hydroelectric projects, water resources planning and management," NWRA said. "He has testified on numerous occasions before Congressional committees on Endangered Species Act (ESA) issues on behalf of the Association. Tom has been actively involved in the development and implementation of basin-wide, regional and local solutions on behalf of water users that provide ESA compliance for more than 3,000 water projects in the upper Colorado, Platte, San Juan and Rio Grande basins." Three of these programs have received the Secretary of the Interior's Cooperative Conservation award.

Since 1983, Pitts has represented Upper Basin water users in the negotiation and implementation of the Upper Colorado River Endangered Fish Recovery Program. He worked with the U.S. Fish and Wildlife Service; the Bureau of Reclamation; the states of Colorado, Utah and Wyoming; and environmental organizations to determine the best way to ensure that water development and management could continue in compliance with the ESA in the Upper Colorado River Basin.

TOM PITTS

"Tom was one of the primary architects of the Upper Colorado Program," said Deputy Director Angela Kantola, who has worked with him since shortly after the program was established in 1988.

"When conflict between water use and development and endangered fish needs seemed unresolvable, Tom cut to the root of the problem — the fishes were endangered; therefore, the only viable solution was to recover them," Kantola said.

The principal of his own firm, Water Consult, Pitts recognized that recovery provides the greatest regulatory certainty for water users in the long run. He worked with others to create a program of partners from organizations that rely on Colorado River water to accomplish their respective goals consistent with state water and wildlife laws and interstate water compacts.

Through his leadership, the Upper Colorado Program developed into a national model of effective endangered species conservation. Other recovery programs have formed since, including the San Juan River Basin Recovery Implementation Program (1996), the Platte River Recovery Implementation Program (1997), the Virgin River Program (1999), and the June Sucker Recovery Implementation Program (2002).

"The San Juan Program would not be where it is today if it weren't for Tom Pitts," said San Juan Program Director Dave Campbell. "Tom had the vision to take what was working in the Upper Colorado River Basin and apply it to the San Juan River Basin."

Pitts also has the admiration of Kris Polly, former deputy commissioner of the Bureau of Reclamation, serving under Commissioner Bob Johnson.

"No one person is more deserving of the NWRA Lifetime Achievement Award than Tom Pitts," said Polly who is currently editor-in-chief of *Irrigation Leader* magazine. "Tom successfully found a way to help create and focus programs on species recovery and save water users and the federal government from millions of dollars in costly litigation. These types of recovery programs are the way the ESA should be implemented in every state."

Pitts and his wife, Shirley Coffman, reside in Loveland, Colo. They have four children and nine grandchildren.

Editor's note: Upper Colorado and San Juan recovery programs' staff and partners extend their sincere congratulations to Tom Pitts for this well-deserved honor.

Recovery programs news and updates

MIKE PORRAS, COLORADO PARKS AND WILDLIFE

Horsethief Canyon grow-out ponds completed

Grow-out ponds were constructed this year at the Horsethief Canyon Native Fish Facility near Fruita, Colo., to increase production of razorback sucker for the Upper Colorado and San Juan programs. The ponds may also be used to raise any or all of the other three endangered fish species in the near future.

The ponds provide a more cost-effective and efficient way to raise genetically-sound, endangered fish needed to achieve both programs' annual stocking goals. The Ouray National Fish Hatchery Grand Valley Unit operates and maintains the ponds which will become fully operational in 2013.

For information: Dale Ryden, 970-245-9319, ext. 19, dale_ryden@fws.gov.

SAN JUAN PROGRAM

Bureau of Reclamation outlines operations for Aspinall Unit

The Bureau of Reclamation released a record of decision (ROD) in May 2012 that outlines operations of the Aspinall Unit consisting of Blue Mesa, Morrow Point and Crystal dams and reservoirs on the Gunnison River in western Colorado. Operations will provide higher spring flows and protect base flows to assist with endangered fish recovery and meet the needs of water supply, hydropower, recreation, agriculture and sport fisheries.

"The ROD is a culmination of an extraordinary effort by a diverse group of interests and a major step in ongoing efforts to recover the Colorado River endangered fish," said Assistant Secretary of the Interior for Water and Science Anne Castle.

For information: Justyn Hock, 970-248-0625, jhock@usbr.gov.

SAN JUAN PROGRAM

Fish barrier slated for construction at Hogback Diversion Dam

The Navajo Engineering Construction Authority will begin construction in winter 2012-2013 on the San Juan River Program's fish barrier at the Hogback Diversion Dam near Shiprock, N.M. The fish weir will prevent endangered fish from getting trapped in the diversion canal. The project is expected to be completed in March 2013 before the beginning of the irrigation season.

"We are excited about our partnership with the Navajo Nation to construct the project and are anticipating a very successful outcome," said Bureau of Reclamation Technical Services Division Manager Brent Uilenberg.

For information: Brent Uilenberg, 970-248-0641, builenberg@usbr.gov.

Swimming Upstream available online

Swimming Upstream readers have the option to receive an email notification when the newsletter becomes available online at ColoradoRiverRecovery.org or southwest.fws.gov/sjrip. Please let us know if you prefer this option.

Email your preference to upstream@fws.gov. If you no longer want to receive the mailed version, provide your full name, mailing address and telephone number so we can delete you from our mailing list. Please provide the email address where you would like a link to be sent.

For information: Debbie Felker, 303-969-7322, ext. 227, debbie_felker@fws.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 Felker • Sharon Whitmore
Co-editors

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Western Resource Advocates
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The Nature Conservancy
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U.S. Fish and Wildlife Service
Water Development Interests

Program director's message

By Dave Campbell, Program Director
San Juan River Basin Recovery Implementation Program

In January 2005, I packed up my old gray Toyota pickup truck and moved from the state of Washington to New Mexico with my fiancée and our cat Quercus. That winter, I embarked on my first trip to the Southwest and to a new job with the U.S. Fish and Wildlife Service as the program director for the San Juan River Basin Recovery Implementation Program.

The San Juan Program had been without a program director for some time and had become self-directed over the years. The Coordination Committee and the Service collectively decided that the program needed a more directed approach to become more effective in utilizing its resources to develop and accomplish recovery actions for the endangered razorback sucker and Colorado pikeminnow.

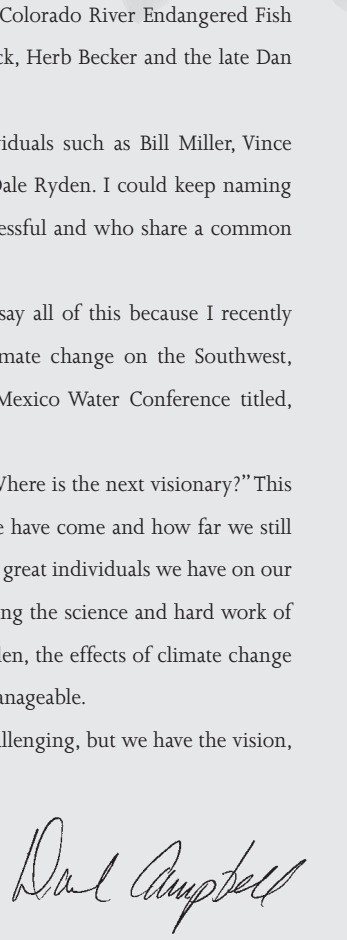
Over the past eight years, through the vision and efforts of individuals on the Coordination Committee such as Tom Pitts and Brent Uilenberg who had the benefit of working on the Upper Colorado River Endangered Fish Recovery Program, and Tribal representatives such as Cathy Condon, Stanley Pollack, Herb Becker and the late Dan Israel, the San Juan Program has developed a more focused direction for recovery.

That direction has been forged with the strong scientific expertise of individuals such as Bill Miller, Vince LaMarra, Paul Holden, Jim Brooks, Jason Davis, David Propst, Steve Platania and Dale Ryden. I could keep naming individuals who have contributed so much to making the San Juan Program successful and who share a common vision that put the wheels of change into motion.

By now, some of you reading this may be asking what my point is. Well, I say all of this because I recently read an opinion article in the *Santa Fe Reporter* that focused on the effects of climate change on the Southwest, sustainability and the future. The writer had attended this year's annual New Mexico Water Conference titled, "Hard Choices: Adapting Policy and Management to Water Scarcity."

In a panel discussion titled "Straight Talk," one panelist posed the question: "Where is the next visionary?" This made me think about our two endangered fish recovery programs and how far we have come and how far we still have to go. The "how far we have to go" scared me at first. Then I thought about the great individuals we have on our teams, the visionaries who make up our leadership, the biologists we have providing the science and hard work of recovery, and all of the skilled administrative staff who support them. All of a sudden, the effects of climate change on the Southwest, sustainability and the future seemed less daunting and more manageable.

We have come a long way as a team. Recovering endangered fishes may be challenging, but we have the vision, we have the leadership and we have the skills to achieve our goals.



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Ryden named researcher of the year

U.S. Fish and Wildlife Service Biologist Dale Ryden has spent countless hours navigating rivers and lakes in the San Juan and Upper Colorado river basins during the past two decades. A foremost expert on river habitat and fish populations, he has a rare knowledge of how endangered fishes behave throughout their life cycles.

Ryden has stocked and monitored thousands of endangered fishes and identified their habitat preferences and spawning areas. He has also conducted and studied nonnative fish removal activities and their effects on endangered fish populations.

"Dale's 20 years of experience on the San Juan River makes him one of the most knowledgeable and respected members of our Biology Committee," said Dave Campbell, program director for the San Juan River Basin Recovery Implementation Program, who co-presented the award. "He brings a wealth of knowledge and experience that can only be gained from spending decades working on the river."

Ryden originally pursued a career as a history professor at Mesa State College in Grand Junction.

"Somehow, I got hooked on biology and before I knew it, I had switched my major," he said.

Ryden earned his bachelor's degree in biology at Mesa State and pursued graduate studies at California State University–Fresno and Moss Landing Marine Laboratories. Early in his career, he worked for the California Department of Fish and Game on mitigation issues for endangered species such as the San Joaquin kit fox and blunt-nosed leopard lizard.

U.S. FISH AND WILDLIFE SERVICE

DALE RYDEN HOLDS AN ENDANGERED RAZORBACK SUCKER RAISED AT THE OURAY NATIONAL FISH HATCHERY GRAND VALLEY UNIT.

Ryden later returned to Grand Junction, Colo., where he earned his reputation as a leading researcher for endangered fishes. He currently oversees endangered fish recovery projects for Colorado River Fishery Project offices in Grand Junction and in Vernal, Utah.

He has published two journal articles about his work in the San Juan River Basin and has authored numerous research publications. He also made contributions to the flow recommendations report for the reoperation of Navajo Dam and the San Juan Program's long-term monitoring protocols.

"Dale's history and experience with the San Juan River is invaluable to folks who have not worked with the endangered fishes that long," said Mark McKinstry, a program manager and biologist with the Bureau of Reclamation in Salt Lake City, who joined with Campbell to co-present the award. "Dale carries on his ambitions as a history teacher with his vast knowledge of the San Juan River fishes and his willingness to share that knowledge with new biologists. It's important to have that kind of continuity in long-term programs."

Ryden would be the first to say how fortunate he is to work with endangered fishes and all of the people involved with their recovery.

"I've been blessed to be able to work with so many brilliant and inspirational people throughout my career," he said. "Both recovery programs are populated with amazing researchers who have dedicated their careers to trying to achieve the recovery of these rare and historic fishes. To be recognized by my peers, whom I believe are all as worthy (and probably more so) as myself, is truly a great honor."

Lake Nighthorse Reservoir project to meet multiple needs of people and fishes

Lake Nighthorse, a new reservoir in southwest Colorado near Durango, is closely tied to recovery activities being conducted by the San Juan River Basin Recovery Implementation Program. As part of the Animas-La Plata Project (ALP), the reservoir will supply municipal and industrial water to the Southern Ute Indian Tribe, Ute Mountain Ute Tribe, Navajo Nation, ALP Water Conservancy District and San Juan Water Commission.

Water stored in Lake Nighthorse will be released, as needed, back into the Animas River for municipal and industrial uses within Colorado and New Mexico. The reservoir has a full capacity of 123,541 acre-feet, and an inactive pool of about 30,000 acre-feet for recreation, fishery and water quality purposes. Construction of the project began in 2002, the reservoir started filling in 2009, and the lake reached full capacity on June 29, 2011.

Keeping nonnative fishes from escaping Lake Nighthorse is critical to the survival of endangered fishes.

BUREAU OF RECLAMATION

THE SAN JUAN PROGRAM IS WORKING TO ENSURE THAT NONNATIVE FISHES PLACED IN LAKE NIGHTHORSE RESERVOIR DO NOT ESCAPE THE RESERVOIR AND ENTER THE SAN JUAN RIVER WHERE THEY COULD HARM ENDANGERED FISHES.

The ALP is made up of four components:

- Ridges Basin Dam and Lake Nighthorse—an off-stream dam and reservoir outside of Durango;
- Durango Pumping Plant—a 308 cubic-feet-per-second nominal capacity pumping plant located south of Durango, on the west side of the Animas River;
- Ridges Basin Inlet conduit—a pipeline that carries water about 550 feet in elevation from the Animas River to Lake Nighthorse; and
- Navajo Nation Municipal Pipeline—a buried pipeline to carry treated water in New Mexico from Farmington to the Shiprock area to benefit the Navajo Nation.

Because the Animas River is a major tributary to the San Juan River, a primary environmental commitment of the ALP is to support the goals and recovery activities of the San Juan Program. To do this, operations of the ALP will be compatible with operations at Navajo Dam on the San Juan River to implement flow recommendations that benefit endangered fishes.

Design features at the pumping plant, inlet conduit and Lake Nighthorse were included to prevent fishes from being trapped against grates, screens or the pump infrastructure and from entering and becoming trapped in the pump and inlet conduit. In addition, features were included to keep nonnative fishes stocked in the lake for recreational fishing from escaping into the San Juan River where they could harm endangered fishes.

Although recreation at Lake Nighthorse is not yet open to the public, the Bureau of Reclamation, U.S. Fish and Wildlife Service, Colorado Parks and Wildlife, Southern Ute Indian Tribe, New Mexico Department of Game and Fish, and others have been discussing what future fish stocking should occur in the reservoir. Activities are underway for future fish stocking in the reservoir that is compatible with endangered fish recovery goals and activities.

As part of the ALP, Reclamation funded the annual acquisition and stocking of wild strains of trout in the Animas River, within the boundaries of the Southern Ute Indian Reservation, to compensate for fish loss due to reduced usable trout habitat. Reclamation will also provide trout to stock in Lake Nighthorse for a recreational fishery. Although cold-water fishes such as trout are not considered a threat to the endangered fishes because they use different locations and habitats within the river, other nonnative species may be of concern.

"Keeping fishes from escaping Lake Nighthorse is critical to preventing the introduction of undesirable, nonnative fishes into the Animas and San Juan rivers," said San Juan Program Director Dave Campbell. "The recovery goals for the Colorado pikeminnow and razorback sucker identify predation and competition by nonnative fish species as a primary threat to their recovery. Controlling nonnative fishes is a high priority for the San Juan Program."

The reservoir outlet was designed and fitted with a high-pressure sleeve valve to prevent live fishes, eggs or larvae from escaping from the reservoir. Reclamation has run several tests to assess escapement from the reservoir, and while the high-pressure sleeve valve appears to be highly effective, some fishes passed through the outlet alive during early tests conducted at low reservoir levels. The effectiveness of the valve improved at higher reservoir levels, due to an increased pressure gradient at the valve. Stocking of certain nonnative fish species will be contingent on the effectiveness of the sleeve valve to prevent their escape.

The San Juan Program will continue to work with Reclamation, states, tribes and water organizations to ensure that the operation and management of Lake Nighthorse is compatible with the recovery of the endangered fishes, while the other purposes of Lake Nighthorse move forward. The final plans for fish stocking in Lake Nighthorse will be reflected in Colorado's Fisheries Lake Management Plan for the reservoir.

For more information, contact Ryan Christianson, 970-385-6590, rchristianson@usbr.gov.

Western states work to prevent illegal stocking

Illegal stocking and the invasion of aquatic nuisance species are growing problems when it comes to recovery of endangered fishes in the Upper Colorado River Basin. The Upper Colorado River Endangered Fish Recovery Program and the San Juan River Basin Recovery Implementation Program look to the leadership of state wildlife agencies in Colorado, New Mexico, Utah and Wyoming to address these issues.

While the recovery programs use a science- and consensus-based framework to develop and direct management actions to deliver necessary river flows, stock endangered fishes, restore habitat, operate fish passages and screens, and remove nonnative fishes, they depend on the states to lead efforts to prevent problems with illegally introduced and invasive species.

Illegal stocking occurs when someone moves fishes from one river or lake to another. Illegal stocking can destroy fisheries, take away fishing opportunities and waste angler dollars. Sometimes nonnative fishes are illegally placed in reservoirs from which they can escape into habitat important to the life cycle of endangered humpback chub, bonytail, razorback sucker and Colorado pikeminnow.

Nonnative fishes such as smallmouth bass, walleye, northern pike and burbot have been illegally introduced into Upper Basin reservoirs. These predatory fishes compete for food and space and prey upon native fishes. This can change the entire ecology of the system, reducing the quality of fishing overall and the prospects for native fish recovery.

"There are many examples of fishes being put in places where they don't belong and we're committed to stop the illegal movement of fishes in this state," said Bob Thompson, assistant chief of law enforcement, Colorado Parks and Wildlife. "Those people are committing a crime and threatening fisheries that all anglers have paid to create and preserve."

Once an illegally stocked fish population becomes established, the only recourse may be to kill all of the fishes in the lake to remove the undesired species. In addition, illegally moving fishes from one body of water to another risks the spread of disease or aquatic nuisance species. Correcting these problems can cost millions of dollars that might otherwise be spent to improve fishing opportunities.

States take aggressive stand

State wildlife agencies are taking an aggressive stand to stop illegal stocking and are enforcing regulations with stiff penalties for abuse.

In Colorado, anyone caught illegally moving fishes faces fines of up to $5,000 plus the loss of hunting and fishing privileges in Colorado and 36 other states. Those convicted could also be liable for the extremely high cost of eradication or removal of the illegally stocked fishes.

Colorado also initiated a policy that prohibits live transport of crayfish collected in waters that drain to the upper Colorado River.

New Mexico established regulations that require a state permit to stock fishes or fish eggs in any waters and to import live fishes or fish eggs. A new regulation implemented in 2012 removed bag limits for northern pike at Eagle Nest Lake in northeast New Mexico. Anglers must keep all northern pike caught and none may be returned to the lake. Although this lake is not in the Upper Basin, the state's action demonstrates its efforts to eliminate a potential source of nonnative northern pike as well as to limit the damage they inflict on this popular local trout and salmon fishery.

For several years now, Utah has implemented no-limit and mandated catch-and-kill regulations at waters where illegal introductions have taken place. These regulations are intended to send the message that Utah will no longer manage fishes that were illegally placed in those waters and removes the incentive for those who would continue these illegal activities.

"We are currently expanding our outreach efforts and looking at additional regulatory options to discourage illegal introductions," explained Utah Division of Wildlife Resources Sport Fisheries Coordinator Drew Cushing.

Utah also instituted a "must-kill" policy on nonnative smallmouth bass in the Green River, northern pike in Utah Lake and for burbot caught anywhere in the state. Although the no-limit and catch-and-kill regulations will help fight illegal fish stocking in Utah, other penalties are also in place. These include a three-year license revocation as well as a $1,000 fine for anyone who is caught transporting live fishes and a $2,500 fine for individuals who illegally stock fishes.

Wyoming increased the penalty for illicit stocking up to a maximum of $10,000 and the loss of fishing and hunting privileges for life. Wyoming also removed an illegally stocked population of invasive rusty crayfish in the North Platte Basin. This case resulted in a fine and restitution of $100,000 for the offender and is an example of Wyoming working to prevent illicit stocking in any state waters.

The recovery programs support the states' efforts to develop and maintain productive sport fisheries that are compatible with the goals of endangered fish recovery. "The states' success in turning illegal stocking around will be a key component to recovering the endangered fishes," said Patrick Martinez, nonnative fish coordinator for the Upper Colorado Program. "In recent years, they have increased efforts to stop illegal stocking. This is important because illegal stocking threatens sport fisheries, complicates endangered fish recovery efforts and siphons money away from other needed fishery management efforts."

For more information, contact Pat Martinez, 970-245-9319, ext. 41, patrick_martinez@fws.gov.

What you can do

- Follow all regulations to prevent introduction of Aquatic Nuisance Species.
- Do not move fishes from one body of water to another.
- On waters with no bag and possession limits on certain species, keep those fishes.
- Follow "must-kill" regulations where applicable.
- Report illegal stocking activity. In some cases a reward may be available. (If you want to remain anonymous, your request will be honored.)
- Report illegal fish stocking online at go.usa.gov/CV0.

Colorado
Operation Game Thief:
game.thief@state.co.us
1-877-265-6648

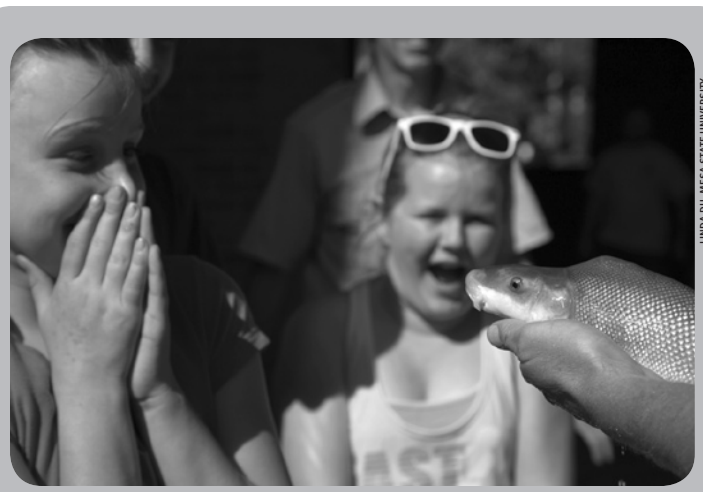
New Mexico
Operation Game Thief:
1-800-432-4263

Utah
Utah Turn in a Poacher:
1-800-662-3337

Wyoming
Stop Poaching tip line:
1-877-WGFD-TIP

COLORADO PARKS AND WILDLIFE

COLORADO PARKS AND WILDLIFE BIOLOGIST ANITA MARTINEZ HOLDS A NONNATIVE SMALLMOUTH BASS CAPTURED FROM THE YAMPA RIVER. SHE AND OTHER RESEARCHERS ARE WORKING TO REMOVE THE THREATS THAT CERTAIN NONNATIVE FISHES POSE TO ENDANGERED FISHES.



LINDA DU, MESA STATE UNIVERSITY

A razorback sucker — oh my!

Fifth-grade students react to seeing an endangered razorback sucker up close and personal at this year's Children's Water Festival, an event sponsored each May by Ute Water, Clifton Water, the City of Grand Junction and the Town of Palisade in western Colorado. This year marked the 15th year that the U.S. Fish and Wildlife Service has shown students endangered fishes from its Ouray National Fish Hatchery Grand Valley Unit. Students also learn the differences between native and nonnative fishes. Other learning stations taught students about water for farming and irrigation, hydropower generation, fire suppression, and household and municipal uses. The Bureau of Reclamation staffed an exhibit about the Upper Colorado River Endangered Fish Recovery Program.

swimming upstream

Upper Colorado River Endangered Fish Recovery Program

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