Nonnative fish experts refine management actions through information exchange at annual workshops

O nly 14 species or subspecies of native fish occurred historically in the Upper Colorado River system. During the past 100 years, at least 67 nonnative fish species were introduced. Some species were intentionally introduced by state and federal agencies to address public demand for sportfisheries during that time. Unintentional introductions occurred when species that were intentionally stocked in ponds and reservoirs for sportfishing escaped into the river system. Some of these escapes successfully established self-sustaining populations in areas occupied by endangered fishes. Unauthorized introduction of other nonnative fishes also occurred. Some nonnative fish species did not flourish and are rarely encountered. Others are abundant and widespread and are known to prey upon endangered fish and compete with them for food and space in the river. The threat posed by nonnative fishes to endangered fishes continues to rise and is currently the biggest obstacle to endangered fish recovery. The Upper Colorado River Endangered Fish Recovery Program (Upper Colorado Program) and the San Juan River Basin Recovery Implementation Program (San Juan Program) are implementing management actions to reduce certain nonnative fish populations to a level where endangered fishes can survive and re-establish self-sustaining populations. The species identified by scientific research as the greatest threat to the endangered fishes in the San Juan River are channel catfish and common carp. Smallmouth bass and northern pike are of greatest concern to the Upper Colorado Program.

Managing nonnative fishes

Although river habitat and fish populations differ between the two recovery programs, many nonnative fish management actions are the same. These include developing targets and implementing nonnative fish removal, assessing effects of management actions on fish communities and evaluating management methods. The programs also work with state and federal agencies and tribes to establish policies and agreements to manage sport fish in a manner compatible with endangered fish recovery. Both programs use a variety of techniques to manage nonnative fishes:

- **Mechanical removal.** In 2010, researchers removed targeted nonnative fishes from 164 miles in the San Juan and more than 500 miles in the Colorado, Duchesne, Green and Yampa rivers in the Upper Colorado River Basin. Removed fishes were used for study purposes, transported to local ponds or reservoirs for recreational angling or organized.
- **Selective fish passages.** All fishes that attempt to use passages to move upstream are captured in a holding tank where they are sorted. Endangered and other native fishes are released into the river upstream of the passage and nonnative species are removed.
- **Screening reservoir outlets and intakes and herming ponds.** These actions limit or prevent nonnative fish escapement from ponds and reservoirs to reduce the number of nonnative fishes that enter the river where they could interact with endangered fishes. They also keep fish from getting trapped in canals.
- **Regulating stocking and changing fishing regulations and policies.** In 2009, the state of Colorado, Utah and Wyoming and the U.S. Fish and Wildlife Service renewed their commitment to ensure that sportfish management is compatible with endangered species recovery through enactment of revised nonnative Fish Stocking Procedures. Colorado and Utah also changed bag and possession limits to reduce harvest of the nonnative fish species of greatest concern. Although recreational fishing pressure on the San Juan River is limited and nonnative fishes are not currently being stocked in critical habitats of the endangered fish, maintenance of state and tribal sport fishing regulations and harvest policies helps the San Juan Program manage nonnative fish distribution and abundance.

Making great strides

During the past decade the recovery programs have made great strides in the areas of research and implementation of nonnative fish management actions. Since 2002, the San Juan Program observed a significant decline in catch rates of common carp river-wide. Common carp are now less commonly found than the endangered pike downstream of Craig, Colo., where the endangered fishes are found. Smallmouth bass hang on tenaciously in the middle reaches of the Yampa River despite a steady increase in removal efforts since 2004 (see related story on page 3). Smallmouth bass numbers downstream of that stronghold area have declined in recent years, presumably as a result of removal efforts combined with higher flows that hinder the species’ reproduction.

Evaluation and coordination

Both recovery programs continuously evaluate management actions and modify them as needed to improve their effectiveness and cost efficiency. Researchers from both programs participate in the Upper Colorado Program’s annual nonnative fish workshops where participants share information and learn new techniques and methods to assess and implement nonnative management actions. In 2010, the San Juan Program hosted its own two-day nonnative fish workshop.

Gila genusthe Canyon Native Fish Facility will continue on page 3

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**Water interest will begin in 2011.**

A survey to locate razorback sucker and other fish species of interest will begin in 2011.

**Reducing threat posed by smallmouth bass, p. 3**

Agencies collaborate to prevent a spike of nonnative smallmouth bass in the Yampa River.

**Endangered fishes use restored river habitat, p. 4**

Former aquaculture tainting site functions as fish habitat and shallow water wildlife wetland.

**Grow-out ponds to be built for razorback sucker, p. 5**

Construction of hypertarget response in the northern pike population in the Yampa River. Unfortunately, reservoirs and backwater sloughs that connect to the river upstream of removal efforts continue to be a source of northern pike reproduction. Young northern pike produced in those areas sustain numbers of juvenile-sized northern pike downstream of Craig, Colo., where the endangered fishes are found.

**Humpback chub hang on in the Yampa River, p. 6**

Native populations of the endangered chub are sorted in efforts to recover endangered humpback chub.
Lake Powell’s San Juan River arm to be surveyed for endangered fishes in 2011

The endangered razorback sucker was a scientifically documented member of the San Juan River’s native fish community as late as 1988. By the early 1990s, wild populations had essentially disappeared from the mainstem San Juan River. To help recover the species, the San Juan River Basin Recovery Implementation Program (San Juan Program) began a stocking program in 1994. With the exception of 1999, razorback sucker have been stocked in the San Juan River every year since that time. Almost from the first stocking, razorback sucker moved downstream out of the mainstem San Juan River and into the San Juan River arm of Lake Powell which straddles the Arizona and Utah borders. Because of its isolated and remote location, this area has an interesting history of non-selective fish passage.

When the San Juan Program began in 1994, five structures were identified as barriers or partial barriers to fish movement. Two of these, Cudei and Hogback diversion dams, are owned and operated by the Navajo Nation, a San Juan Program partner. In 2001 and 2002, dam and canal modifications were constructed at Hogback and Cudei diversion dams to improve irrigation system reliability and to provide non-selective* fish passage for endangered Colorado pikeminnow and razorback sucker.

In 2004, the San Juan Program funded an assessment of the Hogback Diversion Canal to determine the need for additional screening devices. A total of 8,304 mostly small-bodied fishes were collected in the canal. Red shiner and speckled dace were the most abundant species followed by bullhead sucker and bluehead sucker. Additionally, 140 Colorado pikeminnow were collected in the canal, of which 129 were age-0 fishes that appeared to be from stocking activities. No razorback sucker were collected. Endangered fishes becoming trapped in the Hogback Canal could limit the San Juan Program’s ability to recover these species in the San Juan River.

As a result of 2007 Bureau of Reclamation (Reclamation) engineering study, the San Juan Program chose to construct a weir wall in the canal in lieu of traditional fish screens. Use of the weir concept allows only the upper portion (5 percent) of the water to flow through the structure and an after-bay for canal diversion. The weir wall guides fishes and sediment that enter the canal back to the river while allowing the “cleanest” water near the surface to be used for irrigation. Because the weir wall will skim only the top three inches of flow into the canal, the need for continual screening (which can be problematic on the San Juan River due to high bed and debris loads) can be prevented. This design will also potentially provide better fish screening over a traditional screening facility that may have intermittent operation. In addition, passive fish monitoring and/or tracking instruments can be installed at various locations on the structure to monitor the effectiveness of the project and the ability to serve as a holding/adaptation area for fish stocking purposes.

Principles learned from the Hogback Canal design will be used to construct these features on other diversions and canals. An operations and maintenance contract among the U.S. Fish and Wildlife Service, Public Service Company of New Mexico, and the Navajo Nation was executed in 2010 and environmental compliance is underway. Reclamation expects to award a construction contract in spring/summer 2011 with construction to begin October/November 2011 and the project to be completed in 2012.

For more information, contact Sharon Whitmore, 505-761-6352, or sharon_whitmore@fws.gov. *A non-selective fish passage allows all fishes to move upstream through the passage. This differs from a selective fish passage where fishes are collected and sorted.

Habitat restoration efforts to begin on San Juan River

The new Environment Department will provide $398,070 in funding through its River Ecosystem Restoration Initiative (RERI) to the Nature Conservancy (TNC). It will be acting in cooperation with the U.S. Fish and Wildlife Service, the Bureau of Reclamation and the San Juan River Basin Recovery Implementation Program (San Juan Program) to re-connect secondary channels along the San Juan River to the main channel to create backwater habitat for endangered Colorado pikeminnow and razorback sucker.

The restoration efforts will take place in the San Juan River between the Hogback Diversion Dam and the New Mexico–Colorado state line on the Navajo Nation within New Mexico. TNC and the Navajo Nation are partners in the San Juan Program.

The San Juan River has become narrower, less complex and more channelized as non-native vegetation such as Russian olive and salt cedar (tamarisk) has expanded in the San Juan River Basin. Many historic secondary channels that previously supported backwaters and low/velocity habitat in the San Juan River are now disconnected from the active river and have become armored with non-native vegetation. Secondary channels offer important habitats for larval and juvenile fishes to feed, grow and escape predators. The RERI project will reconnect secondary channels to the main channel to create low-velocity habitats by lowering the mouth of secondary channels and removing non-native vegetation. These reconstructed secondary channels would be maintained by flows in the San Juan River.

Potential restoration sites were identified during a survey in August 2010 and design plans for phases one through six to 10 sites were expected to be finalized by November TNC has contracted with Keller Bleser Engineering for the identification and design work and the Navajo Nation will do the construction work. Construction is expected to begin in late summer or early fall 2011. An evaluation of the functionality of the restored sites will occur by summer of early fall 2012 after the reconstructed secondary channels have been exposed to a full year of peak and base flows.

For more information, contact Scott Dunst, 505-761-4739, or scott_dunst@fws.gov.
Reflining management actions

continued from page 1

workshop to provide a forum for its principal investigators to:
- Review the threats to the native fish community posed by nonnative fishes, focusing on the endangered fishes in the San Juan River Basin
- Review the findings and progress related to the San Juan Program’s efforts to reduce the threat of nonnative fishes
- Identify native and nonnative fishes response to nonnative fish removal
- Review current methods used to manage nonnative fishes on the San Juan River
- Develop targets and milestones to evaluate the effectiveness of the nonnative fish management program
- Explore new methods and techniques that may apply to the San Juan Program’s nonnative fish management program

The goal was to develop a unified strategy to guide the San Juan Program’s nonnative fish management program and to recommend ways to improve its effectiveness. Thirty nonnative fish experts attended, including principal investigators and Biology Committee members from both the San Juan and Upper Colorado programs, peer reviewers, San Juan Program staff and invited experts from Arizona, Colorado and San Juan River basins.

Experts conclude intensive nonnative fish management needed

A resounding conclusion of the workshop was that the current intensive removal effort needs to continue. Electrofishing removal programs are a reasonable management option but continued monitoring is required to keep their numbers down. Nonnative fish removal on the San Juan River has effectively eliminated common carp as a threat to the endangered fishes. In slow-flowing habitats, monitoring data show that the density of smaller nonnative fishes has declined since 2003, and that of native fishes has been numerically dominant since 2004. Other less-common, small nonnative fish species are also increasingly rare.

For the future, the native fish population has not shown positive population response to nonnative fish removal efforts. That may be the result of a limited time frame. Common carp have been in the San Juan River for more than 100 years and channel catfish for the past 10 years; both invasive nonnative species are widespread in the San Juan River. In 2008. When looking for small native fish that are common catfish to connection to nonnative fish removal, only a few small, endemic species may not be the best indicator of progress.

Razorback sucker disappeared, and Colorado pikeminnow nearly disappeared, from the San Juan River. While maintaining and the numbers of nonnative fishes have accumulated to the point they can successfully reproduce.

The goal was to develop a unified, long-term strategy to guide the San Juan Program’s nonnative fish management program and to recommend ways to improve its effectiveness. Thirty nonnative fish experts attended, including principal investigators and Biology Committee members from both the San Juan and Upper Colorado programs, peer reviewers, San Juan Program staff and invited experts from Arizona, Colorado and San Juan River basins.

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Summer spent working with endangered fishes: best experience of my life

My name is Kelsey Thomas and I spent last summer as an intern with the U.S. Fish and Wildlife Service in Grand Junction, Colo., a partner of the Upper Colorado River Endangered Fish Recovery Program. I got this internship through Palisade High School and School District 51. The school program gives students the opportunity to work in a field that they are thinking of making a career. This program gives students a chance to see if the field is the one that they would like to pursue in life, and a half credit for every 60 hours that are spent on the job site.

During June through August, I took part in every activity that the biologists do. I mainly helped the seasonal workers with their work. I helped out at two fish passages and at the Grand Junction hatchery, and got to go out onto the river electrofishing. I saw what they have to do day-to-day to keep things working. On my first day, they sent me out trammel netting a small pond off the Colorado River. That day was my first experience with any fishes on the Colorado River.

The first time that I encountered any of the four endangered fishes, I was on the rise. On the first day that I went out onto the river electrofishing I saw what four I had not seen before. That day, I caught a Colorado pikeminnow and that was the biggest fish that I had ever seen. To this point, I have never seen a bonytail or a humpback chub outside the hatchery. The job that I did the most was working at the fish passages. During that time, I saw most of the species of fish that live in the Colorado River, except the four endangered fishes.

Last summer’s experience was one of the most fulfilling and best of my life. I look forward to doing this again next year and as a career for the rest of my life.

—by Kelsey Thomas, Student Intern

New Southern Colorado reservoir connects to San Juan River

Lake Nighthorse, near Durango, Colo., is starting to take shape. In August 2010, the lake reached 60 percent of its 120,000 acre-foot capacity. Part of the Animas-La Plata Project (ALP), it will supply municipal and industrial water to the Southern Ute Tribe, Ute Mountain Ute Tribe, Navajo Nation, ALP Water Conservation District and the San Juan Water Conservation District. The lake is expected to reach full capacity in 2011 and is not yet open to the public. ALP operations are closely tied to activities conducted by the San Juan Program and must not jeopardize endangered fish recovery.

For information: Sharon Whitmore, 970-245-4735, or sharon_whitmore@fws.gov.

Larry Kolz receives AFS Award of Merit

Nationally renowned electrofishing researcher and educator Larry Kolz was honored in late 2009 with the Award of Merit from the Fisheries Management Section of the American Fisheries Society. While his scientific contributions are many, this award was granted, in part, for his work to refine electrofishing as a technique to sample fishes.

“Larry’s work on electrofishing theory and his efforts to communicate it to fisheries biologists helped advance the fisheries profession,” said FWS-AFS President Dirk Miller. “His work led to improvements in sampling efficiency while helping to reduce fish injury.” Researchers use Larry’s techniques as they work to recover endangered fishes.

For information: Pat Martinez, 970-245-9395, ext. 41, or patrick_martinez@fws.gov.

Former uranium mill tailing site now provides endangered fish habitat

Twenty years ago, an unsightly landfill along the Colorado River in western Colorado contained nearly 225,000 tons of uranium mill tailings and other hazardous materials. That’s when the City of Grand Junction and the U.S. Department of Energy began to clean up the site and soon developed a partnership of local, state and federal agencies and organizations to restore the river habitat. Today, the site hosts native plants and trees and a paved trail provides recreational opportunities for people of all ages.

As cleanup activities took place, the Upper Colorado River Endangered Fish Recovery Program (Upper Colorado Program) worked with the other partners to ensure that the site was restored to provide seasonal floodplain habitat for endangered Colorado pikeminnow and razorback sucker.

Today, a notch placed in the embankment of the Colorado River allows water to flow into the reclaimed site in the spring when the river runs high. This develops into a shallow floodplain wetland that provides a sheltered feeding and resting area for the endangered fishes.

During the past decade, drought conditions prevented the site from flooding in most years. In 2008, higher river flows connected the river to the floodplain and a Colorado pikeminnow became the first endangered fish to use the restored habitat. In June 2010, three razorback suckers were captured in the wetland.

“Finding endangered fishes in this area confirms that we use it on a seasonal basis,” said U.S. Fish and Wildlife Service Biologist Patty Gelatt, who oversaw completion of this project. “While we recognize that the number of endangered fishes captured has been small, our sampling efforts have been limited by low water and limited time and personnel.”

During the winter of 2010-2011, the Upper Colorado Program will remove sediment that has built up in the connecting notch so that this habitat continues to function optimally.

Although the site was restored primarily to provide fish habitat, it has developed into a shallow water wetland that is valuable to birds and other wildlife and is frequently used by waterfowl, shorebirds and song birds.

“The Upper Colorado Program appreciates the cooperation of the City of Grand Junction and the other organizations that worked to restore this site which now contributes important habitat for Colorado River endangered fishes,” Patty said.

For more information, contact Patty Gelatt, 970-245-1920, ext 26, or patty_gelatt@fws.gov.

Programs raise endangered fish awareness at National Scout Jamboree

Attendants at the 2010 Boy Scouts of America National Jamboree learned about endangered Colorado River fishes and water-related issues at a special exhibit hosted by the Bureau of Reclamation. More than 44,000 people attended the jamboree at Fort A.P. Hill, Va. The event celebrated the 50th anniversary of the Boy Scouts of America.

Scouts learned that there are four species of endangered fish that live only in the Colorado River; why these fishes are endangered and what is being done to recover them; how researchers track and monitor endangered fish populations; and what each scout can do to help conserve species.

Native Fish

Living Planet Aquarium features endangered fishes

This private facility in Sandy, Utah, worked with the Utah Division of Wildlife Resources and the recovery programs this year to establish an interpretive exhibit that features endangered bonytail and razorback sucker. The aquarium plans to move to a new facility in 2012, at which time there may be additional educational opportunities.

Giving visitors a close look at live endangered fishes is important because they can see each fish’s unique features and learn about their role in the river’s ecosystem. The recovery program features many organizations that help promote endangered fish recovery through these types of exhibits.


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. The 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, and are based on strong responsibilities to American Indian tribes.

Debra Fisher • Sharon Whitmore

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Water Development Interests
Construction of Horsethief Canyon Native Fish Facility to begin during winter 2010

The Bureau of Reclamation (Reclamation), in cooperation with the U.S. Fish and Wildlife Service (Service), is working on the design of a facility in western Colorado to hold and rear endangered Colorado River fishes. The proposed site is near both the Orange and Tincup creeks, in Horsethief Canyon State Wildlife Area. The federal government purchased this property to offset the impacts of the Grand Valley Diversion of the Colorado River Basin Salinity Control Project.

Raising and stocking genetically sound populations of endangered fishes to achieve self-sustaining populations in a high priority of both the Upper Colorado River Endangered Fish Recovery Program and the San Juan River Basin Recovery Implementation Program. Without genetic samples, predators have no way of knowing the optimal size and numbers for stocking, which is critical. The primary drive of the facility is to provide both recovery programs with great-out ponds for endangered razorback suckers. The facility is also being considered to hold other endangered species if needed in the future.

The facility will consist of 22 ponds, ranging in size from 250 to 5,000 square feet. The ponds will be 2 to 5 acres. Each pond will be lined with a geomembrane fabric to reduce loss due to seepage and to facilitate cleaning of the ponds. The ponds will operate at depths of five to six feet. Each pond will have a concrete kite structure that allows it to be drained, maintains water levels during operation, and provides an area for the fish to be concentrated when the time comes to be relocated.

The configuration of the ponds is shown above. The ponds will be constructed at an elevation that will prevent overcooling to the 100-year flood event. The facility will hold a total of 500 endangered fishes in the ponds and to preclude entry by the public. It will also include a small metal building to store maintenance equipment and to allow sorting and handling of the fish.

The service will operate and maintain the facility which will reduce, if not eliminate, the need to lease private ponds. For more information, contact Civil Engineer Kevin Moran, Bureau of Reclamation, Western Colorado A&O Office, 970-248-0635, or kmoran@bureau.gov.

Hawkins named outstanding researcher of the year

Colorado State University (CSU) Research Associate John Hawkins was named 2010 Outstanding Researcher of the Year by the Upper Colorado River Endangered Fish Recovery Program (Upper Colorado Program). John is one of the foremost experts on native and endangered fishes in the Colorado River System. With a focus on the fishes of the Yampa River, one of the last free-flowing rivers in the American West, John's career began in 1979 as a volunteer with CSU's Larval Fish Laboratory in Fort Collins, Colo., and continued for several years as a member of the Colorado Division of Wildlife, the U.S. Fish and Wildlife Service and the National Park Service. During that time, he and other researchers worked to uncover the life history of Colorado pikeminnow. That early work serves as a benchmark that describes the river system prior to the major changes brought about by predatory, nonnative fish species and provides a basis for management actions to recover endangered fishes in the Yampa River.

Since 1983, John has been a research associate with CSU's Larval Fish Laboratory, Department of Fish, Wildlife and Conservation Biology. He earned a bachelor's degree in zoology and a master's degree in fishery and wildlife biology from CSU. Past Researcher of the Year recipients Bob Stueckel and Ed Wick co-presented this year's award.

"I've worked with John in both of our careers on the Yampa and Little Snake rivers, fish age and growth, the effects of nonnative fishes on native fish communities and management techniques that reduce the impact of nonnative fishes. His research findings are published in numerous technical reports and publications. Since 1983, John has been a research associate with CSU's Larval Fish Laboratory, Department of Fish, Wildlife and Conservation Biology. He earned a bachelor's degree in zoology, a master's degree in fishery and wildlife biology from CSU. Past Researcher of the Year recipients Bob Stueckel and Ed Wick co-presented this year's award."

Program director's message

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

A s the Upper Colorado and San Juan recovery programs’ non-federal partners continue to work with members of Congress to secure continued funding at current levels through 2013, their efforts have yielded results that have made the recovery programs national models for achieving conservation through collaboration.

Having worked in many areas throughout the United States and overseas, I have had the opportunity to participate in a wide variety of approaches to environmental conservation. None were as successful as the Upper Colorado and the San Juan recovery programs. Our programs’ successes have always been grounded in the tireless commitment of all of our partners. Year after year, the recovery programs demonstrate that public/private partnerships can effectively recover endangered species and resolve Endangered Species Act-related conflicts.

Based on this proven effectiveness, state and federal leaders (including Congress), through various administrations, continue to provide bipartisan support and critically important funding for these recovery programs.

During a time in our nation’s history when almost no one seems to agree on anything, the recovery programs continue to develop and implement innovative solutions to meet the water needs of growing Western communities while also benefiting the endangered fishes. Stakeholders are actively engaged at all levels—deciding on the source of recovery and implementation of recovery actions.

While the recovery programs rely on recovery goals and sound science to develop and implement management actions, there is also a commitment to ensure that water-management actions benefit recreational, municipal and agricultural water users, as well as the endangered fishes.

As we move forward toward 2013, both programs will still face their share of challenges. Nonnative fish, for example, are a biological threat to recovery with the potential to quickly dominate the physical and financial resources available to both programs. Climate change raises another set of concerns. Although we have learned a lot about the effects of global warming on the Colorado River Basin as a whole, we are a long way from translating what we know into what the effects may be on the endangered fishes and future recovery actions.

With these challenges, and others we will face, I remain confident that the recovery programs have the right mix of partners, researchers and staff to make the appropriate decisions and implement actions that will enable us to achieve our goals.

In closing, I am pleased to report to the public for the San Juan Program and with the Upper Colorado Program. Both recovery programs exemplify how to move forward in a world with many competing interests. It is refreshing to work with creative and dedicated people who truly believe in our mission. I want to thank the recovery programs’ partners, staff, volunteers and many others for their hard work and dedication, which will lead to our success.

John A. Hawkins

Antennas monitor endangered fish movement to critical habitat

A new passive integrated transponder (PIT) tag system became operational in August 2010 at a fish passage at the Price-Stubb Diversion Dam on the Colorado River in western Colorado. The system continuously detects movement through the passage of endangered fishes that are PIT tagged. A PIT tag is a small microchip in a glass capsule like those placed in a dog or cat at a veterinary clinic for individual identification.

Designed by biomark, Inc., the system runs on solar power and consists of four, 6-foot by 5-foot antennas attached to the box culvert at the top of the passage. When a fish with a PIT tag uses the passage, the system sends data to biologists via phone. The system provides remote-sensing and is built to withstand the flows and debris of the Colorado River.

The system became operational on August 12, 2010. Four days later, it detected two Colorado pikeminnow. One was originally caught in 1999 and has been handled at least 314 times within 10 miles of the passage. The other was tagged in 2009, 130 miles downstream.

“We are excited to receive important information about all four species of endangered fish from this remote-sensing system,” said U.S. Fish and Wildlife Service Project Leader Michelle Shaughnessy. “This tracking system will help identify the type and number of species that move through the passage and inhabit this river reach.”

Construction of the Price-Stubb fish passage was completed in summer 2008 and removed the last barrier to fish migration in 290 miles of the Colorado River from Utah’s Lake Powell to the upper end of critical habitat near Rifle, Colo.

For more information, contact Tom Crapella, 303-969-7322, ext. 218, or tom.crapella@fws.gov.
I n October 2007, U.S. Fish and Wildlife Service (Service) and National Park Service biologists collected 400 young (less than 4 inch-es) native fishes of the Gila genus from the Yampa River in Dinosaur National Monument in northwest Colorado. Although researchers suspected that most of these fishes were roundtail chub (Gila robusta), they thought that some could be endangered humpback chub (Gila cypha). The Upper Colorado River Endangered Fish Recovery Program (Upper Colorado Program) conducted the study as part of efforts to recover the endangered humpback chub.

Concerns about the future of the humpback chub led to this study. One of six known humpback chub populations is found in the Yampa and Green rivers in Dinosaur National Monument. Downstream trends in some of these populations have been attributed to increased numbers of nonnative fishes and habitat changes associated with dry weather and low river flows.

Because the two Gila species are difficult to tell apart when young, they were transported to two hatcheries until they grew large enough to identify. The Ouray National Fish Hatchery, Randlett Unit, near Vernal, Utah, and the State of Colorado’s J.W. Mummna Native Aquatic Species Restoration Facility in Alamosa, Colo., each received 200 fishes.

Outay Hatchery fishes were sorted in 2009. The hatchery retained all humpback chub and returned the roundtail chub to the Green River in Utah during fall 2009. This year, National Park Service Biologist Melissa Trammell worked with Mummna Hatchery staff to sort the 112 Gila fishes remaining at that location. Some had been lost during three years at the facility, mainly due to bird predation.

Melissa and Mummna Hatchery staff identified the majority of the fishes as roundtail chub. Those were tagged for release back into the Yampa River within Dinosaur National Monument during fall 2010. Tim fishes identified as humpback chub will be transported to the Ouray Hatchery by year’s end where they will be held with the other 19 humpback chub from this study to serve as a refuge and possible broodstock. Tissue from the fishes identified as humpback chub held at the Randlett Unit were provided to Dexter National Fish Hatchery & Technology Center in Dexter, N.M., for genetic analysis. Genetic markers from this analysis indicate that all of the fishes in the study are hybrid. This means that they are likely offspring of both humpback and roundtail chub, unlike humpback chub collected in the Green River in Desolation/Gray canyons in Utah, and roundtail chub found in Muddy Creek, Wyo., which appear to be pure.

"Genetic testing is a requirement in the development of any broodstock, and would be completed if we find the need to raise humpback chub in hatchery facilities,” said Upper Colorado Program Propagation/Research Coordinator Tom Crapola. "Completion of this study is a significant first step toward understanding humpback chub in the Upper Basin rivers."

As standard practice, the states and the Service take every precaution to ensure no fish diseases or parasites are transferred between the rivers and the hatcheries.

For more information, contact Tom Crapola, 103-969-7322, ext. 228, or tom_crapola@fws.gov.

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Study confirms humpback chub hang on in Yampa River within Dinosaur National Monument

Navajo Nation welcomes new native fish biologist

L ast May, the Navajo Nation Department of Fish and Wildlife (NNDFW) welcomed Native Fish Biologist James Morel to its staff at the agency’s Nenahnezad Chapter House in Fruitland, N.M. James and his team of NNDFW technicians currently aid the San Juan River Basin Recovery Implementation Program’s recovery efforts through the operation of a fish passage at the Public Service Company of New Mexico weir and maintenance of a grow-out facility for endangered fish on tribal lands. His team also initiates independent and collaborative native fish research and management projects throughout the Navajo Reservation.

James has a master’s degree in fish, wildlife and ecology from New Mexico State University in Las Cruces. His graduate studies focused on examining various components of channel catfish population dynamics in the San Juan River in New Mexico and Utah. He also has a bachelor’s degree in wildlife conservation (fisheries option) from Southeastern Oklahoma State University in Durant.

James has extensive fisheries research experience in Oklahoma, New Mexico and Texas. His current scientific interests include examining fish communities in the southwestern United States, population dynamics, and interactions between native and nonnative fish. James also has a research interest in Central American fish communities, through an ongoing independent endeavor which is conducted primarily in Belize.

James can be reached at jmorel@nndfw.org.