

RAZORBACK SUCKER



Program director's message

By Bob Muth

As I near the end of my second year as program director, I continue to marvel at the accomplishments and cooperative nature of this remarkable program. There's no magic formula to the Recovery Program's success. It simply boils down to open, honest communication and collaboration among a lot of dedicated people who represent organizations with diverse interests in the Colorado River but who share the common goal of recovering the endangered fishes.

Some of these people are policymakers who make decisions and develop action plans that propel the Recovery Program to achieve its goal. Others perform the hands-on work that will lead to recovery of the endangered fish. They conduct research and use the best available science to help us understand what the fish need to thrive. This information is critical to developing management strategies and implementing plans that will improve habitat, guide hatchery and stocking programs, and help reduce threats from nonnative, predatory fish.

Perhaps less noticeable, but essential to the Recovery Program's success, are the administrative and clerical staff who work behind the scenes to help finalize reports, track budgets, handle payroll, schedule travel and provide support in so many other important ways.

Beyond the core partners and staff who comprise the Recovery Program, others provide expertise and assistance in a variety of ways. This cooperative spirit enabled the U.S. Fish and Wildlife Service to complete a three-year project to develop recovery goals for endangered fish. The goals define the steps needed to recover the fish and establish measures to evaluate our progress toward establishing self-sustaining populations (see related article in News and Updates on page 3). This was indeed a group effort. Under the leadership of the Recovery Program, the goals were developed with the help of public and private organizations, including American Indian tribes, from the seven Colorado River Basin states.

To ensure the Recovery Program has time to accomplish the recovery goals, Department of the Interior Secretary Gale Norton, Colorado Governor Bill Owens, Wyoming Governor Jim Geringer, Utah Governor Mike Leavitt and Western Area Power Administration Administrator Mike Haskaylo renewed their commitment by signing a cooperative agreement that extends the Recovery Program another 10 years to 2013.

Finally, what many have called the worst drought in Colorado's history actually defined the cooperative nature of the Recovery Program. Water and power interest environmental organizations and local, state and federal agencies proactively came together to share shortages and stretch available water to serve the needs of people and endangered fish in the best possible way. Given the value of water in the arid West, this was no small task. All are to be commended for the extra efforts they made.

The Recovery Program works with diverse groups and people with special interests and mandates from their constituents that aren't always compatible. Despite differences of opinion and management policies, our partners continue to provide a unified front. This is the strength of our program. Speaking with one voice and working together allows us to successfully move forward.

Those of us who continue to work with the Recovery Program want to acknowledge those colleagues who have recently moved on to other endeavors. Among those are Recovery Program Land Acquisition Coordinator Dave Soker, National Park Service Resource Management Specialist Stephen Petersburg and U.S. Fish and Wildlife Service Assistant Director for Ecological Services Susan Baker. These individuals made significant contributions to our program and we wish them happiness and success as they celebrate their retirement this year.

As I look ahead toward next year I appreciate the opportunity to work with so many bright and dedicated people. I remain confident that together we can meet the challenges ahead.

Kiss and tell: A fish story

—by Betsy Blakeslee, Education Coordinator, The Nature Conservancy

May 17, 2001 — A class of third graders lined the bank of the Yampa River at The Nature Conservancy's Carpenter Ranch in northwest Colorado to watch the "fish guys" empty trapping nets they had set a few days before. These U.S. Fish and Wildlife Service biologists transferred northern pike to a holding tank on the truck to relocate them to state wildlife area fishing ponds west of Hayden where they would no longer pose a threat to endangered Colorado River fish. (See related article on back page.)

The kids were mesmerized by the huge, slimy, toothy creatures from the deep. The "fish guys" were giving a respectable presentation on fish biology, behavior and habitat when, upon removing and holding up a white sucker, a student asked if she could kiss the fish. What followed was the most romantic moment that fish had experienced, as the sucker was carried down the line of third graders — all poised in the kiss position.

"This pretty much sums up the benefits of experiential, place-based education," their teacher Cindy Gantick said. "It's fun, it's relevant, it's authentic, and it allows students to develop a personal relationship with their subject."

The deeper we dig for scientific information which drives our work, the more complex my challenge becomes. The possibility of coming up with an easy way to engage third graders in conservation science was becoming more and more remote until the events that followed that fateful kissathon.

May 17, 2002 — Exactly one year later, seven artists from two local high schools arrived at the Carpenter Ranch's education center to participate in an Art in Ecology Workshop. Their goal was to paint a mural of the Yampa River ecosystem to serve as the backdrop for an aquarium donated by the Recovery Program to display the endangered razorback sucker.

The Upper Colorado River Endangered Fish Recovery Program donated the aquarium and some interpretive signs to the education center to help raise community awareness of ongoing efforts to recover the endangered fish. Colorado Division of Wildlife Education Specialist Stan Johnson arranged to have local students help place razorback sucker from the Recovery Program's Grand Junction hatchery into the aquarium. Students will nurture and monitor the fish dur-



ABOVE: "FISH GUYS" DREW SCOTT, BIOLOGICAL SCIENCE TECHNICIAN, U.S. FISH AND WILDLIFE SERVICE, TALKS WITH LOCAL STUDENTS ABOUT THE FISH THAT LIVE IN THE YAMPA RIVER.

BELOW: WITH GUIDANCE FROM A PROFESSIONAL ARTIST, LOCAL HIGH SCHOOL STUDENTS PAINTED A MURAL OF THE YAMPA RIVER ECOSYSTEM TO SERVE AS THE BACKDROP FOR AN AQUARIUM DISPLAYING ENDANGERED RAZORBACK SUCKERS AT THE NATURE CONSERVANCY'S CARPENTER RANCH. PICTURED FROM LEFT: DANA SCHLINGMAN, CHULA WALKER (MURALIST), CATE GEPHART, JEANNIE HEYSER, RORY CLOW AND TAWNY RANDOLPH.



ing the school year. Next spring, they will help biologists tag the fish and release them into the wild.

With funding from the Yampa Valley Legacy Education Initiative and the Yampa Valley Community Foundation, the workshop became a reality. Local muralist Chula Walker-Griffith and the artists developed a design for the mural that wove together the forest, river, birds, mammals, animals, insects, fish and plants that would tell the story of the river. The students' drawings were combined and distilled until they had a single composition to work from.

"The talent and enthusiasm of the group was very encouraging," Walker-Griffith remarked. "We had a chance to practice constructive criticism and artistic collaboration to create the mural."

Early Saturday morning, two curriculum developers from Hayden and Steamboat Springs school districts, along with an art teacher and a science teacher, arrived to spend the day developing place-based science and art curricula based on the project.

"Hands-on, experiential learning allows students to construct environmental understandings on both an intellectual and a personal level," said Steamboat Springs High School Teacher Cindy Gay. "We can't hope that students will understand the importance of ecosystem preservation at a global level if they can't see the value and beauty of the ecosystem in which they live."

Editor's note: Students of all ages are invited to visit The Nature Conservancy's Carpenter Ranch to learn about ranching's role in Colorado history and to discover the amazing ecosystem that includes the Yampa River. The ranch is open Thursdays, Fridays and Saturdays, 9 a.m. to noon, May 15 to September 1 (closed holidays). Admission is free. The ranch is located on U.S. Highway 40 just east of Hayden, Colo., (about 20 miles west of Steamboat Springs). For more information, visit the website: <http://nature.org> or call 970-276-4626.

Northern Ute Indian Tribe honors elders with fishing pond

Members of the Northern Ute Indian Tribe gathered September 18 to honor their elders at the dedication of a newly constructed fishing pond next to its senior center on the Uintah and Ouray Indian Reservation in northeast Utah. The three-acre pond offers a range of recreational opportunities.

"We are delighted to have this pond for our tribal elders to enjoy," said Irene Cuch, director, Northern Ute Indian Tribe Senior Citizen Center. "Many of our seniors can't get out into the mountains to fish like when they were younger. Having this pond so close will make it possible for our elders to walk down to the pond or just go for a stroll around it."

To ensure that sportfish stocked in the pond do not escape into the

river where they could interact with the endangered fish, the Recovery Program and Tribe installed a \$35,000 fish screen and trap at the pond's outlet. "The Ute Tribe continues to play an important role in the Recovery Program's success by providing access to tribal lands and waters and by helping to conduct important research about the endangered fish and their habitat needs," said Bob McCue, ecological services supervisor, U.S. Fish and Wildlife Service.

The U.S. Environmental Protection Agency funded pond construction. The Ute Indian Tribe's Water Settlement Program provided funds through its Fish and Wildlife Department to enhance recreation for the seniors. In addition to funding,



ANTONIO "AI" KANIP (CENTER) AND OTHER MEMBERS OF THE RED SPIRIT MUSICAL GROUP PERFORM A SONG AT THE DEDICATION OF A NEWLY CONSTRUCTED ELDER'S POND ON THE UINTAH AND OURAY INDIAN RESERVATION IN NORTHEAST UTAH.

several private businesses donated time and expertise.

"It is extremely rewarding to the Tribe to see so many people and agencies cooperating on this project," said Tribal Councilman Roland McCook.

Biologists transfer northern pike to area fishing sites

Biologists removed 538 large, predatory northern pike from the Yampa River this year as part of a multi-year study to improve the survival of endangered and other native fishes in the Yampa and Green rivers. Of those, 455 were transferred to local public fishing areas, 42 were used for various other research studies and 41 died during handling and transport.



SETH RICHARDSON (LEFT), JUSTIN RHYNE, ALAN AND CODY RHYNE (NOT PICTURED), ALL FROM MEEKER, COLO., HELPED BIOLOGISTS FROM COLORADO STATE UNIVERSITY TRANSFER NORTHERN PIKE FROM THE YAMPA RIVER TO NEARBY RIO BLANCO RESERVOIR.

U.S. Fish and Wildlife Service crews tagged and transferred 165 northern pike upstream of critical habitat in the Upper Yampa River to the Yampa State Wildlife Area (SWA). Biologists from Colorado State University's (CSU) Larval Fish Laboratory transferred 290 northern pike from critical habitat in the Yampa River downstream of Craig to Rio Blanco Reservoir.

Anglers at the Yampa SWA caught a large number of the relocated northern pike, as indicated by the number of returned tags and end-of-season sampling results by Colorado Division of Wildlife (CDOW) biologists.

"We've had positive interactions with people about the northern pike removal project," said CSU Researcher John Hawkins. "We worked closely with the CDOW district wildlife managers and wildlife technicians in the

Yampa Valley and at Rio Blanco Reservoir and appreciate their assistance. We also appreciate the cooperation and understanding of several landowners who provided us with access to their property along the Yampa River."

Like Colorado pikeminnow, northern pike is a top predator. In 2000, CSU researchers found that 9 percent of the Colorado pikeminnow they caught had bite wounds that demonstrate attempted predation by northern pike. This number increased to 24 percent in 2001 and 42 percent in 2002.

"It appears that each year a greater percentage of the adult Colorado pikeminnow have experienced northern pike predation attempts," said Tom Nesler, native fish conservation program manager, CDOW. In this drought-impacted year, reduced flows

have reduced available river habitat more rapidly.

"This may concentrate fish in remaining habitats, increasing their vulnerability to the larger predators," Nesler said.

CDOW data on the Yampa River fish community indicated that the survival of young and juvenile fish was very low in 2000 and 2001.

"Our data suggests the abundant gamefish like northern pike, smallmouth bass and channel catfish, as well as Colorado pikeminnow, are eating most of the young fish produced each year so the same thing may occur again in 2002," Nesler said. "This will result in declining adult populations of native fish species over time. We expect the removal of large predators like northern pike from the river will improve survival of the native fish species."

CDOW and the Recovery Program are developing plans for future years and evaluating fish population data from ongoing surveys and nonnative fish control projects. The possibility of extending control or removal actions in the Yampa River is being considered.

In a separate project that began this year, CSU researchers placed yellow tags on small numbers of northern pike. Anglers who catch one of these tagged fish are asked to return them to the river so that their movement can be studied during the next year.

Editor's note: For more information, contact CDOW: Tom Nesler (tom.nesler@state.co.us), 970-472-4384; or Recovery Program: Pat Nelson (pat_nelson@fws.gov) or Gerry Roehm (gerry_roehm@fws.gov), 303-969-7322.

swimming upstream

Upper Colorado River Endangered Fish Recovery Program

Brothers relive childhood memories of once abundant fish

Nearly 70 years ago, brothers Dale and Max Stewart tied a strong piece of string to a flexible branch cut from a tamarisk tree and cast into the Green River near Vernal, Utah, in search of enough large fish to feed their family and friends during the Depression. They baited their hooks with hellgrammites — a large aquatic insect found under rocks on the riverbank.

At the age of 8, Max caught a 25-pound Colorado pikeminnow (called squawfish or whitefish in those days) that was nearly as big as he was. Dale still holds the record in the small northwest Utah community for the largest Colorado pikeminnow caught in that area — 26 pounds.

"When I'd get a good one, I'd have a shiver run up the back of my neck," Dale, now 81, said. "The whitefish is more fun to catch than a trout because they're bigger." The



THE STEWART BROTHERS ENJOYED FISHING FOR COLORADO PIKEMINNOW (THEN CALLED COLORADO SQUAWFISH OR WHITEFISH) DURING THE DEPRESSION IN THE 1930s. PICTURED WITH THEIR CATCH FROM THE GREEN RIVER NEAR VERNAL, UTAH, ARE DALE, 12 (LEFT), MAX, 4 (ON THE WAGON), AND GLEN, 16.

brothers recall that the fish were excellent to eat.

"In the summer, our family and friends would gather near the river for a fish fry," Max, 73, recalled. "We'd enjoy large quantities of fish accompanied by homemade bread, green beans from the garden and other good food. To me, the Colorado pikeminnow tasted somewhere between salmon and halibut." The Stewart's mother would can large quantities of fish to enjoy during the winter.

The largest minnow in North America, Colorado pikeminnow once grew to nearly six feet in length and were known to weigh nearly 80 pounds. Changes to the Colorado River system during the mid-1900s led to the decline of Colorado pikeminnow and three other species of fish that are now endangered — humpback chub, bonytail and razor-



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back sucker. Today, the Upper Colorado River Endangered Fish Recovery Program works to bring these species back from the brink of extinction.

Biologists are beginning to see the return of the Colorado pikeminnow in areas where the Stewart brothers fished as children, offering hope that these once popular sportfish can again become abundant in the Upper Colorado River Basin.

"We've seen some Colorado pikeminnow as large as 25 pounds during recent studies of the river,"

said Frank Pfeifer, project leader, U.S. Fish and Wildlife Service, Vernal, Utah. "We're beginning to see greater numbers of this fish in the river system, including areas popular with anglers, so it's more important than ever that people learn to recognize them and to understand that they are endangered and must be released unharmed. At the same time, we want anglers to gain an appreciation for their value as fighting sportfish."

In June, the Recovery Program took Max and Dale to the White River about 60 miles southeast of their

hometown. There they had an opportunity to help U.S. Fish and Wildlife Service biologists capture Colorado pikeminnow.

"We knew there was an effort taking place to restore this species," Max said, "but we didn't think we'd live long enough to ever see them again. It was a thrill to see them. We hope that someday people will have as much fun fishing for them as Dale and I have."

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16.8-pound female the largest yet to use the Redlands Fish Ladder.

Connecting the dots on the Green River

—by Ron Stewart,
Consumption Outreach Manager
Utah Division of Wildlife Resources

What do dinosaur fossils, fish tanks, muddy water, 13,000 foot peaks, ancient seas, 987,000 cubic yards of concrete, 1 billion years, red rock cliffs, trophy trout fisheries and 19 educators all have in common?

The answer: four species of endangered fish.

It all started two years ago when Diana Vos, Project WILD coordinator for the Utah Division of Wildlife Resources, contacted Ron Stewart, regional outreach manager, and Kevin Christopherson, regional project leader, for the Green River endangered fish studies. Diana wanted to do an Advanced Project WILD Workshop on the threatened and endangered fish of the Green River. She was a bit surprised when discussions changed from fish life history to the geologic history and ecology of the Green River. But it didn't take long to convince her that the story of the fish has to be told in the context of the Green River, a story that is 1 billion years in the making.

The 19 teachers and other educators who signed up for the workshop also were a bit surprised when the first speaker, David Whitman, chief of interpretation for Dinosaur National

the Uinta Mountain Range, were showed up, the river was blocked, forming a large inland lake. As more water flowed in, it broke through and connected to river systems flowing south to the Gulf of California. The river, through geologic time, carved through mountains and plateaus creating steep canyon walls.

As Kevin picked up the story he talked about the incredible adaptations the fish had to make to survive. This river drained from a huge geographical area and was subject to massive cold, muddy spring floods. By late summer, the flows were minor and the water warm and mostly clear. During winter, the surface of the water froze and the fish had to survive for months under the ice. Then, throw in millions of years of geologic time which included the Ice Ages, times of drought and blistering hot years, mountain building and a few other earthshaking events, and it's clear these fish are survivors.

To live through the changes in the environment and the river, the fish had to adapt.

To survive massive flooding they developed streamlined body shapes with flattened noses and humps on their backs. These odd shapes acted as hydrofoils to keep the fish steady in fast, strong currents. Other adaptations included what was necessary to survive radical changes in water temperature. Some of the adaptations were more behavioral such as spawning during the end of the spring floods so their young would be carried into the surrounding flooded lands. These flooded wetland areas provided sanctuary in terms of escape cover, high quantities of available food and warmer water that helped them to grow faster. As these wetlands dried, the young fish made their way back to the river.

Monument, started talking about geological history. However, they soon realized the humpback chub, bonytail, Colorado pikeminnow and razorback sucker are true survivors. These ancient fish lived through the discovery of the West, through ice ages and the time of mammoths and giant sloths, and through the creation of the Rocky Mountains.

They lived in a river system that at one time flowed from the Utah-Wyoming area to the northeast and into the Mississippi River drainage. As the Rocky Mountains, including

The first night was spent in Browns Park. In this wildlife-rich area, participants tried their hand at fishing, bird watching and exploring some of the local human history preserved at Jarvis Ranch, a historic site managed by the Bureau of Land Management. The next morning, they drove through ancient seas and petrified sand dunes looking for antelope. After a short stop at the visitor center, they enjoyed a guided tour of a massive, 502-foot-tall concrete plug called Flaming Gorge Dam.

Fish Adapt to New World

One of the main goals of the workshop was to present the realities of the world in which the fish now live. Most of the Western states are extremely dry, getting only 8 to 12 inches of rain per year. As a result, water is a big concern for everyone. The Flaming Gorge Dam is one of several Bureau of Reclamation (BOR) projects located along the Green and Colorado river system. Warren Blanchard, BOR, introduced the group to the human values, concerns and solutions surrounding water.

Warren also explained that some actions already have been taken at the dam for both the trout and endangered fish. Penstocks were built to allow warmer surface waters to be mixed with those from the bottom of the dam. The dam also has begun to regulate its flows differently.

From comments made after the discussions, most of the participants left with a much greater appreciation of the complexity of Western water issues.

Educators experienced part of the blue-ribbon recreational values created by damming the Green as rainbow, brown and cutthroat trout could be seen swimming under the rafts they launched into 55-degree waters. Participants scooped up invertebrates, minnows and other critters; took water temperatures; examined visibility; and sampled water chemistry of the Green River immediately below the dam. Discussions centered on the life histories of the trout, economic values and the changes the dam has made to the environment.

From the river, the group moved down to Vernal where Larry Cesspooch of the Ute Tribe introduced them to Ute history, culture and rock art. Participants also received a special Ute blessing and were given some instruction on Ute dances.

The next day found them examining the muddy, warm waters of the Green River below Jensen. Participants were divided into groups where they gathered invertebrates, tested water quality and caught fish with electroshocking gear and various types of nets. Most also found that even though they couldn't see more than an inch or two through the brownish-green waters, floating

was the preferred way to escape the summer sun.

On the final day, the group had a chance to see the Ouray National Wildlife Refuge. Here was an opportunity to see the importance of the cottonwood groves, willows and other native wetland communities for the fish, birds and other wildlife. From a high vantage point, participants could see where some of the man-made levees were breached to allow spring floods access to wetland areas, once again providing nursery habitat for young-of-the-year fish.

Also on the refuge is an unusual national fish hatchery, one of only a handful actually raising endangered fish. Here modern technology is trying to duplicate and improve on the historic breeding grounds of the Green River for the razorback sucker. With eggs and sperm collected from only a few surviving adults, biologists are trying to breed and raise enough young to help restock the river.

Biologists continue to work hard to connect the dots on the Green River with the hope that they will find the solution to restore and enable these ancient survivors to once again thrive as an important part of the heritage of the West.

Recovery Program welcomes new project leaders

Frank Pfeifer and Chuck McAda assumed new roles this year with the Colorado River Fishery Projects in Grand Junction, Colo., and Vernal, Utah. For the past 12 years, Frank was project leader in Grand Junction and Chuck was assistant project leader. When Frank relocated to Vernal to replace him, Frank also oversees the Ouray National Fish Hatchery.

"Both men have spent a significant part of their careers studying the Colorado River fish," said Recovery Program Director Bob Muth. "They are some of the best scientists in the field. They understand the fishes' life cycles, including their habitat needs, and they have been involved with the Recovery Program since its beginning. We are fortunate to have them leading our recovery efforts."

Frank's career with the U.S. Fish and Wildlife Service spans 27 years. He spent a short time working in refuges and with endangered species before finding his niche with the fisheries program. He managed sportfisheries on national wildlife refuges in North Dakota for 14 years. As project leader in Grand Junction, he helped shape and implement research efforts and recovery actions for endangered fish.



FRANK PFEIFER, PROJECT LEADER, VERNAL, UTAH.



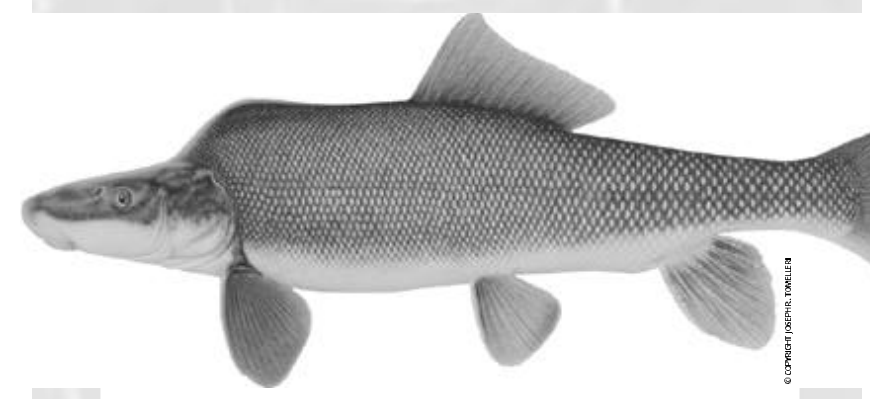
CHUCK MCADA, PROJECT LEADER, GRAND JUNCTION, COLO.

Chuck began his career with the U.S. Fish and Wildlife Service in Salt Lake City then spent three years in Vernal. He has been in Grand Junction for the past 20 years. Chuck has worked on biological issues for these species for 25 years and is looked upon as one of the country's leading experts on these fish. He has authored or co-authored more than two dozen manuscripts on the life history of the fish and has worked on all rivers in the Upper Colorado River Basin where these fish are found.

Asked if he ever gets bored working with these fish, Chuck said, "There's still so much we don't know about them that it's a challenge to keep studying them and learning as much as we can. The more we know about their life

history and habitat requirements, the more success we'll have toward ensuring their long-term survival. It's encouraging to see management actions implemented that will benefit the endangered fish over the long term."

Frank, too, feels a deep commitment to recovering the fish. "I think we've made great strides toward understanding their needs but we still have a long way to go before we're assured that the species can survive," he said. "My immediate goal in my new position is to get the Ouray National Fish Hatchery up and running as a state-of-the-art reuse facility for the culture of endangered fish and to continue to build upon our cooperative relationships through the Recovery Program."



Razorback sucker larvae found in Gunnison River

At least four fish larvae found in the Gunnison River last spring are razorback sucker. The discovery confirms that hatchery-raised razorback sucker can spawn and produce eggs and larvae in the wild. Razorback sucker have been absent from the Gunnison River near Grand Junction, Colo., since the mid-1980s.

Since 1996 the Upper Colorado River Endangered Fish Recovery Program has raised razorback sucker at the Grand Valley Endangered Fish Facility in Grand Junction and reintroduced them in the Gunnison and Colorado rivers through stocking. The presence of larvae indicates that fish stocked as young adults have reached spawning age.

"This is great news," said Chuck McAda, project leader, U.S. Fish and Wildlife Service. "We've been stocking hatchery-raised razorback sucker since 1996 and we were never sure if these fish would be capable of carrying out the normal activities of wild fish. This is direct evidence that we can achieve the first step toward recovery of this species in the Gunnison River."

Biologists found the tiny larvae by sampling the river with light traps and fine-mesh nets. Larvae were taken to Colorado State University's

Razorback Sucker (*Xyrauchen texanus*)

- Distinguishing characteristics**
- Brownish-green upper body with a yellow to white colored belly
 - Usually 15 to 24 inches in length; however, can exceed 36 inches
 - Abrupt, sharp-edged hump behind head
- Specifics**
- One of the rarest of the four species of endangered fish
 - Thought to have evolved 3 million years ago
 - Can live 40 years
 - Capable of spawning at an age of 3 to 4 years
 - Primarily eats insects, plankton and plant matter

- Status**
- Listed as endangered under the federal Endangered Species Act in 1991
 - Listed as endangered under Colorado law in 1979
 - Listed as protected under Utah law in 1973
 - Existing population comprised primarily of adult fish because few young survive
 - Species is being raised in hatcheries and reintroduced into the Colorado River system through stocking to establish populations

Outdoor laboratory confirms importance of habitat to survival of larval fish

Scientists created an outdoor research laboratory this summer in a 20-acre floodplain wetland along the Green River in northwest Utah. The purpose was to determine if any larval razorback sucker and bonytail can survive among nonnative, predatory fish and to confirm scientists' belief that larval survival increases when wetlands are "reset," an activity that occurs naturally in a river system when a high water period follows a drought.

"During drought years, floodplain wetlands naturally dry up and eliminate nonnative predators," said Kevin Christopherson, aquatic biologist, Utah Division of Wildlife Resources. "If high flows occur in years following a drought, the chances of young razor-

back sucker and bonytail surviving are greater because the number of nonnative predators are greatly reduced."

The outdoor laboratory simulated what Mother Nature does on her own during times of drought. Biologists from the Utah Division of Wildlife Resources and the U.S. Fish and Wildlife Service pumped water into a dry floodplain wetland and stocked it with razorback sucker and bonytail larvae. They added the number of nonnative fish that research shows would normally occur in a freshly inundated wetland following a drought.

Three months later, biologists removed all fish from the wetland. The results showed that hundreds of razorback sucker and bonytail survived and grew to an average of 3 inches in length — a size that gives them a fighting chance to escape the appetites of hungry nonnative predator fish like fathead minnows, red shiners, black bullheads, green sunfish and carp.

"Following Mother Nature's example may breathe life back into populations of these endangered fishes," Tim said.

"Through past research we've learned a lot about what adult razorback sucker need to survive and spawn," said Tim Modde, fishery biologist, U.S. Fish and Wildlife Service. "But the missing link has always been how to get the larval fish to survive long enough to reach adulthood. These recent study results could be a key breakthrough in the recovery of both species in the Upper Colorado River Basin."

Past studies conducted through the Recovery Program had disappointing results. When stocking larval fish in floodplains that hadn't been reset, no larvae survived.

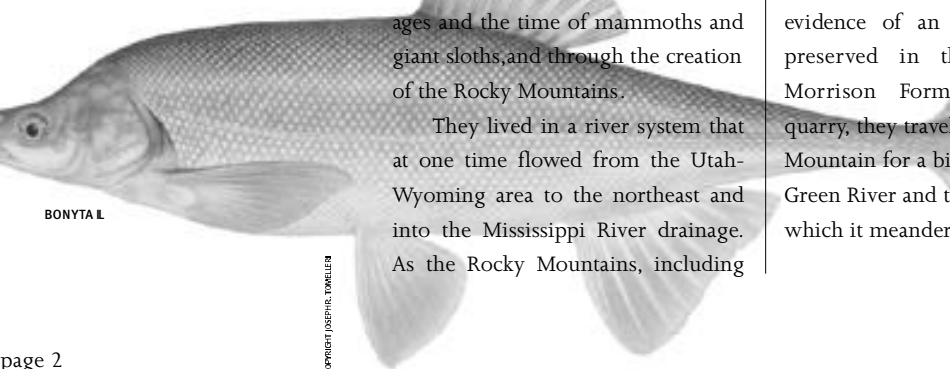
"The fish in this year's study grew from less than 1/4 inch in length to 6 to 8 inches in just six months," Kevin said. "This study proved that reset floodplains provide the conditions that helped the fish grow at an amazing rate. This fast growth during their first few months of life greatly increases their chances of surviving."

Because some of the larger wetlands along the middle Green River have water control structures, they can be drained and "reset" before anticipated high flows and greatly reduce the threat from nonnative fish.

Recovery Program news and updates



U.S. FISH AND WILDLIFE SERVICE FISHERY BIOLOGIST THOMAS HOGAN, FAR RIGHT, SHOWS TEACHERS THE PONDS AT THE OURAY NATIONAL FISH HATCHERY WHERE RAZORBACK SUCKER ARE RAISED AND LATER STOCKED TO HELP RECOVER THE SPECIES.



BONYTAIL

swimming upstream

Upper Colorado River Endangered Fish Recovery Program

Swimming Upstream is a publication of the Upper Colorado River Endangered Fish Recovery Program. The Recovery Program is a cooperative program involving federal and state agencies, environmental groups, and water and power-user organizations in Colorado, Utah and Wyoming. Its purpose is to recover endangered fish while allowing development of water resources for human uses. The four endangered fish species are humpback chub, bonytail, Colorado pikeminnow and razorback sucker.

Robert T. Muth
Program Director
Debra B. Felker
Editor

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

Upper Colorado River Endangered Fish Recovery Program
U.S. Fish and Wildlife Service
P.O. Box 25486, DFC
Lakewood, CO 80225
tel: 303-969-7322
fax: 303-969-7327
ColoradoRiverRecovery.fws.gov



GVIC installs fish screen in Colorado River canal

The Grand Valley Irrigation Company (GVIC) worked with the Recovery Program to install a fish screen in its canal on the Colorado River near Palisade, Colo. The stainless steel screen will prevent endangered and other fish from entering the canal system and being trapped there.

"This is another example of what can be achieved when diverse interest groups work together," said Pat Nelson, habitat and nonnative fish coordinator.

The screen took six months to build at a cost of \$2.1 million. Construction was completed in time to operate the screen during this year's irrigation season; however, the screen was shut down in early June as flows in that stretch of the Colorado River reached their lowest level in recorded history.



Recovery goals completed

The U.S. Fish and Wildlife Service announced completion of recovery goals in August that provide measurable indicators to recover and remove the endangered fishes from listing under the Endangered Species Act. The goals identify site-specific management actions necessary to minimize or remove threats; establish demographic and genetic standards for self-sustaining, viable populations; and provide recovery time estimates.

The recovery goals were developed over the past three years with input from public and private organizations, including American Indian Tribes, representing the seven Colorado River Basin states. More information is available by calling 303-969-7322, ext. 225, or at mountain-prairie.fws.gov/ea/infopackets.



U.S. Bureau of Reclamation celebrates 100 years

Drought in the late 1800s led to crop failures, hard winters and conflicts of water rights that devastated many families trying to live on farms in the arid West. Large private irrigation developments rarely succeeded because of their lack of money and engineering capabilities to build large dams and irrigation works. On June 17, 1902, President Theodore Roosevelt signed the Reclamation Act, a law that employed federal engineering as a tool for social progress. In an era when dam failures were common, Reclamation's structures set high standards for safety and design experience.

Now celebrating its centennial, the U.S. Bureau of Reclamation provides millions of acre-feet of water storage and irrigation water to meet the needs of growing Western communities. This valuable water also

provides recreational opportunities, hydropower, flood control and benefits for endangered fish. "We are fortunate to have the Bureau as our partner and congratulate the agency on its landmark anniversary," said Recovery Program Director Bob Muth. "Agency staff at all levels work hard to support our recovery efforts. Much of our success depends on their expertise and willingness to work with us to achieve the delicate balance of providing water for both people and fish."

For information on how you can visit a traveling museum that portrays Reclamation's history, contact Debbie Fugal at 801-524-3757 or dfugal@uc.usbr.gov.



Fish passage proposed for diversion dams

The U.S. Bureau of Reclamation is reviewing public comments on a draft environmental assessment (EA) to construct a fish passage at the abandoned Price-Stubbs Diversion Dam on the Colorado River near Palisade, Colo. Reclamation also has completed a draft EA proposing a passage at the Grand Valley Project (GVP) Diversion Dam and a fish screen in the Government Highline Canal. The GVP provides irrigation water via the canal that stretches over 90 miles and serves more than 35,000 acres of land throughout the Grand Valley.

These passages will give the endangered Colorado pikeminnow and razorback sucker access to about 50 miles of critical habitat extending to Rifle, Colo.

Aquatic ecologist named outstanding researcher

Richard "Rich" Valdez, an aquatic ecologist and private consultant from Logan, Utah, is this year's recipient of the Upper Colorado River Endangered Fish Recovery Program's Outstanding Researcher of the Year Award. Recovery Program Director Bob Muth presented the award at the Upper Basin Researchers Meeting last January.

"I've known and worked with Rich for many years and have always been impressed with his knowledge and deep commitment to the study of native fishes in rivers of the American Southwest," Bob said. "He can always be counted on for level-headed, scientific perspectives on complex, and often controversial, issues."

Rich is a certified fisheries professional with the American Fisheries Society. He has over 30 years of experience working with the fishes of western North America. He has studied fishes in the mainland and islands of Alaska, and in streams and rivers in the American Southwest and in Canada. He also has conducted work on several Western lakes including Flaming Gorge and Navajo reservoirs, and Lake Powell and Lake Mead.



RECOVERY PROGRAM DIRECTOR BOB MUTH, LEFT, PRESENTS RICH VALDEZ WITH THE OUTSTANDING RESEARCHER OF THE YEAR AWARD.

Rich is one of the principle authors of the Recovery Program's recently completed recovery goals for the endangered Colorado River fishes (see News and Updates on page 3). He also is a lead biologist for the recovery of the humpback chub, putting to use his extensive knowledge of that species developed during years of research.

Rich has authored more than 50 peer-reviewed publications and special reports on Western North America fish. He is co-editor of the book, *The 1996 Controlled Flood in Grand Canyon*, and a contributing writer for the book, *Water, Earth, and Sky: The Colorado River Basin*.

Recovery Program's assistant director honored

Recovery Program Assistant Director Angela Kantola received one of the U.S. Fish and Wildlife Service's highest honors at a special awards presentation in April. Ralph Morgenweck, regional director for the Mountain-Prairie Region and chairman of the Recovery Program's Implementation Committee, presented Angela with a citation for superior service in recognition of her outstanding achievements.

"Since its inception in 1988, the Upper Colorado River Endangered Fish Recovery Program has become a national model for recovery efforts," Ralph said. "Much of the success and acclaim of the program is attributed to Ms. Kantola's dedication and hard work."

Also on hand for the presentation was Tom Pitts, who represents Water Users on the Recovery Program's committees. "Angela's work makes the Recovery Program a success story," Tom said. "She churns ideas and concepts into budgets, work plans, and tangible benefits to the endangered species, such as fish passages, fish screens, habitat improvements, hatchery facilities and augmentation



RECOVERY PROGRAM ASSISTANT DIRECTOR ANGELA KANTOLA RECEIVES ONE OF THE U.S. FISH AND WILDLIFE SERVICE'S HIGHEST AWARDS FROM REGIONAL DIRECTOR RALPH MORGENWECK.

efforts move the Recovery Program forward, and make it a model of cooperation."

Angela came to the Recovery Program in 1989 and was instrumental in its development. She brought a wealth of expertise gained in working with Southeastern endangered species, including the Puerto Rican parrot, Florida manatee and Sherman's fox squirrel (candidate) at Fish and Wildlife Service positions held in Georgia and Florida.



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