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Students help restore populations of ancient fish

Colorado students are helping to restore populations of ancient fish through a unique education program sponsored by the Colorado Division of Wildlife (CDOW). Since 2000, elementary and high school classes in western Colorado have raised endangered razorback sucker or Colorado pikeminnow in classroom aquariums during the school year and released them into the river each spring.

“The Fish Arrive

Our first thought about raising fish was, "We’re going to be raising what?" We were one of 10 lucky classrooms to raise the endangered razorback sucker. It was part of a recovery program to help save native Colorado River species.

On the day the fish arrived, we were all jumping in anticipation, waiting for our new class pets to arrive. “How big are they going to be?”

Learning about Razorbacks

After the fish arrived in the room, our class had more to do than we thought. That same week we started research. We learned that razorbacks live on the bottom of the river where they eat zooplankton, bugs and river bottom ooze off the rocks and mud.

The hump on their back helps them swim upstream. Their current pushes against it. They usually stay on the bottom of the river when the current pushes against it. They usually live in water 3 feet deep, and they mate at the age of 3 or 4. They can live for more than 40 years. These are some cool fish!

To learn more about the fish and the environment they live in, our class went on some field trips. Our first was to a bird-hunting station that was close to the Colorado River. We went to the river and took water samples so we could test the pH, ammonia and nitrate levels. The water wasn’t much different from our classroom tank.

Another trip was to the fish hatchery. Stan and a U.S. Fish and Wildlife Service employee gave us a tour. Not only did we see razorbacks, but we also saw Colorado pikeminnow. That day we saw more than 60,000 fish! Wow!

Razorback Care and Feeding

Each week a new “tank team” took care of the fish. The tank team had various jobs to do and each was just as important as the others. Each person in the team had a certain job. Everyone really liked testing the pH and recording the data for the class on the overhead projector. When we tested ammonia and nitrites, we went swimming upstream

Upper Colorado River Endangered Fish Recovery Program

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“This is a fabulous program,” said fifth-grade teacher Cary Atwood from Scenic Elementary in Grand Junction, Colo. “Having razorback suckers in our classroom greatly increased my students’ interest in learning about endangered species, the river system and water quality. They also assumed the responsibility for feeding the fish, testing their water and monitoring their growth. My students definitively developed a greater understanding of how people have affected the delicate balance of native and nonnative species in the river system.”

At the start of each school year, CDOW Education Specialist Stan Johnson brings the aquarium and fish to each classroom and provides instruction to the students. At over 6 feet tall, he towers above the students as he explains that when they are taking care of the endangered fish, “they are no longer students . . . they are young scientists.” With that said, those young scientists assumed the important job of taking care of the fish. "You have an important job to do. You need to take care of these fish so they’ll grow large enough to survive in the river when we release them in the spring.”

Cary believes the hands-on experience of raising endangered fish cultivates in her students a greater sense of how their decisions can affect the world they live in. “It’s more than just learning to test water quality and to take care of a living being,” she says. "My students learn that the decisions they make about their environment can have consequences. I think they have gained knowledge from their year with the razorbacks that will remain with them for the rest of their lives.”

Editor’s note: The Recovery Program appreciates CDOW’s efforts to raise awareness of its work to restore the endangered fishes. The Recovery Program supports this program by providing fish from its hatchery near Grand Junction. During the fall, the Recovery Program also share aquarium expenses. For more information, contact Stan Johnson at 970-255-6191, stan.johnson@state.co.us.

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—Emily Bergun, Marissa Curtis, Amy Gelatt and Lauren Slagel, students in Mrs. Atwood’s fifth-grade class at Scenic Elementary in Grand Junction, Colo.

The Fish Arrive

Our first thought about raising fish was, “We’re going to be raising what?” We were one of 10 lucky classrooms to raise the endangered razorback sucker. It was part of a recovery program to help save native Colorado River species.

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Targeted Nonnative Fish Species

Northern Pike (Esox lucius)
Northern pike are common locally in reaches of the Yampa and Middle Green rivers. The northern pike is a long-bodied fish with a duckbill snout and mouth filled with sharp teeth. This species is an aggressive predator subsisting primarily on fish. Larger northern pike are known to include waterfowl in their diet. Individuals generally reach 28 inches in length and can live up to 24 years. Researchers have captured northern pike up to 44 inches long in the Yampa River. Northern pike spawn as soon as ice breaks up in the spring.

Channel Catfish (Ictalurus punctatus)
The channel catfish is the second largest member of the catfish family in North America. They are common to abundant throughout much of the Upper Colorado River Basin where they are known to live up to 22 years. This species is easily identifiable by its barbels (whiskers), deeply forked tail and sporadic black spotting. Its sizeable body is sleek, and a broad, flat head dwarfs its lower jaw. In the upper basin, channel catfish are generally 20 inches or less in length; however, researchers have captured individuals up to 35 inches in the Yampa River. Channel catfish spawn between early spring and summer. They use taste buds in their sensitive barbels to locate prey. Major foods are aquatic insects, crayfish, algae and fish.

Smallmouth Bass (Micropterus dolomieui)
Smallmouth bass belong to the sunfish family. They are common locally in reaches of the Yampa and Middle Green rivers. Smallmouth bass are distinguished by three or four dark “tiger stripes” that extend from the eye toward the tail. The eye is typically red or orange. Unlike its cousin, the largemouth bass, its upper jawbone does not extend beyond the eye. Smallmouth bass may reach 22 inches in length and live 10 years. They spawn in the spring. Smallmouth bass eat a variety of aquatic insects, crayfish, algae and fish.

More than 40 nonnative fish species can be found in the Upper Colorado River Basin, compared with 14 native fish species. Negative interactions with certain warmwater nonnative fish species have contributed to declines in endangered and other native fish populations. Some nonnative fish prey upon endangered and other native fishes—eating their eggs and young, and in some cases, larger fish. Nonnative fish also compete with native fish for food and space.

This year, the Upper Colorado River Endangered Fish Recovery Program expanded efforts to identify management actions to minimize or remove the threat of nonnative fishes to survival of the endangered fishes. Recently completed recovery goals require that this occur before the U.S. Fish and Wildlife Service can consider changing the status of these species from “endangered” to “threatened” and eventually to “de-listing” them (removing them from protection under the federal Endangered Species Act).

From late April through October this year, Recovery Program biologists worked in sections of 488 miles of river in Colorado and Utah to remove three species of nonnative fishes: channel catfish, northern pike and smallmouth bass. They targeted these species because scientific evidence suggests they pose a significant threat to the endangered fishes.

Where appropriate and practical, biologists relocated fish removed from the river to local ponds and reservoirs that are publicly accessible to anglers.

In 1999, the Recovery Program installed a fish screen at Highline Lake in western Colorado to prevent nonnative fishes stocked in the lake from escaping into the river where they might interact with endangered fishes. This screen has allowed Colorado to stock the lake with sport fish because it prevents negative interaction with the endangered fishes. Similarly, a screen placed last year at the Ute Tribe’s newly constructed Elders Pond in northeast Utah enabled the Tribe to stock the pond with sportfish. The Recovery Program also has worked with the states of Colorado and Utah to revise nonnative fish stocking plans to stop the introduction of problematic nonnative fishes into habitats occupied by the endangered fishes. In addition, the State of Colorado has removed bag/possession limits on the targeted species in the entire Yampa River and in critical habitat in the Colorado, Gunnison and White rivers.

Helping Other Native Fish Species
Biologists believe that nonnative fish management actions taken to benefit the endangered fishes also will benefit other native fish species such as the roundtail chub, blueback and flannelmouth sucker, and speckled dace.

“Our data suggest the abundant gamefish like northern pike, smallmouth bass and channel catfish are eating most of the young fish produced each year,” said Colorado Division of Wildlife Native Fish Conservation Program Manager Tom Nesler. “This will result in declining adult populations of native fish species over time. Northern pike have begun to prey upon Colorado pikeminnow in the Yampa River due to the scarcity of fish prey. By working proactively to maintain balance in the river system, it is hoped that all native species will continue to thrive and never require state or federal protection as threatened or endangered.”

For more information, contact Pat Nelson, 303-969-7322, ext. 226, pat_nelson@fws.gov.
Doug Osmundson named outstanding researcher of the year

Osmundson named outstanding researcher of the year

Larval fish lab celebrates 25 years

Colorado State University’s Larval Fish Laboratory (LFL) celebrates its 25th anniversary this year. Established in 1978, the LFL is unique among North American fishery research laboratories, focusing its expertise on reproduction and ecology of early-life-history stages of rare native fish species, including the endangered Colorado River fishes. Led by Director Kevin Bestgen, LFL researchers collaborate with local, state, and federal agencies, other universities, and nongovernmental organizations responsible for aquatic resource management. Most activities are concentrated in the Upper Colorado River Basin. LFL research has contributed to the understanding of the natural history and ecology of native fishes in the Colorado and West, which has facilitated efforts to conserve them.

“Much of what we know about the ecology of fishes in the upper basin and many of the Recovery Program’s management and monitoring activities for the endangered fishes are based on data from the lab’s research,” said Recovery Program Director Bob Muth. “The lab provides information that is essential to our ability to recover these fishes.”

Some of the more significant LFL research topics that have contributed toward recovery of endangered fishes include:

- Understanding early-life-history stages of the fishes including how to identify them, what they eat and the kind of habitat they need.
- Monitoring the fishes to understand where they live, their abundance and any changes in their status in response to recovery management actions.
- Assessing changes to the river system that result from operation of major dams and how these changes impact the fishes. LFL scientists participate on interdisciplinary teams responsible for re-operation of these dams for management and recovery of the fishes.
- Identifying electrofishing techniques that will not harm the fishes.
- Studying water quality and habitat needs of the fishes.
- Evaluating effects of removing nonnative, predator fishes.

Located on the Colorado State University campus in Fort Collins, Colo., the LFL’s remodeled facility houses a depositary for preserved fish eggs, larvae and early juveniles collected from various North American locations. The LFL collection consists of an estimated 20,000,000 fish, nearly 4 million specimens, most of which are in early-life stages. The LFL also maintains an extensive literature collection.

Reports are available at www.cnr.colostate.edu/Ecology for more information about the lab, contact Kevin Bestgen, 970-491-8488, bestgen@colostate.edu.

Recovery Program honors U.S. Fish and Wildlife Service hydrologist

There’s no question about it — fish need water to survive. For the past 21 years, U.S. Fish and Wildlife Service Hydrologist George Smith has worked to ensure that endangered Colorado River fishes have river flows necessary to support their recovery. What might seem simple is quite complex, especially in the West where water is more valuable than nearly any other natural resource.

“George takes research results and plays the high-stakes game of Western water poker to ensure that the identified flow needs of endangered fishes are met to the fullest extent possible,” said Recovery Program Director Bob Muth who presented George with a special award at the 2003 annual upper basin researcher’s meeting for his significant accomplishments toward recovery of the endangered fishes.

“George’s ability to view an issue from all sides, combined with the outstanding working relationships he’s established with water users, helped the Recovery Program weather the worst drought in recent history,” Bob said. “I doubt that the endangered fishes would have fared as well as they did without his daily — and sometimes even hourly — attention to river flow conditions, as well as the relationships he’s developed with other water users that resulted in their willingness to work with the program to share the limited water resources.”

After earning a master’s degree in Natural Resource Administration from Colorado State University in Fort Collins, George worked on water-quality and land-use planning issues for the Northwest Colorado Council of Governments. He joined the Service in 1981 to work on issues related to energy development. In 1982, he began to work on water issues related to endangered fishes in the Upper Colorado River Basin. He has worked closely with officials representing state, local and federal agencies, and private water developers.

When the Recovery Program was established in 1988, George assumed the responsibility of working with the Recovery Program’s Water Acquisition Committee to make sure the fish had sufficient water. Since 1989, when water from Ruedi Reservoir was set aside for endangered fish recovery, George has managed water releases for endangered fish from upper basin reservoirs. He has worked on studies for significant water projects that the Recovery Program has put in place including flow recommendations for all of the major rivers in the upper basin, and water-delivery contracts for Ruedi Reservoir, Steamboat, Redlands Fish Passage, Grand Valley Water Management and the Orchard Mesa Check Settlement.

“Receiving this award for my work during the drought is a highlight of my career, along with traveling to Washington, D.C., to brief congressmen the staff about how the Service and the Recovery Program coped with the record drought of 2003,” George said.

“I am honored to be recognized for my work and it was rewarding to be able to tell congressmen that we managed to survive the drought because of the cooperative relationships we have developed over the years with other water users in the basin.”

Learn more about the Recovery Program. Visit us online at ColoradoRiverRecovery.fws.gov.
through the same process as the pH test, except that we had to wait 20 minutes before the color of the vial told the truth about the water quality.

Sometimes the ammonia, nitrates or pH levels were too high or too low and we had to do special things about that. The tank team also had to replace evaporated water and change the tank filters. Even though we changed the filters weekly, they were often very grumpy. When we showed the filters to the class, everyone said, “Howewer!”

When the tank team fed the fish, they also measured the water temperature and counted the fish. We raised 12 fish all last year. The week before we released them, one of the smallest died.

Releasing the Fish

As the day came for us to say farewell to the fish, we were filled with anxiety and sadness. On May 5, our class walked down to the Colorado River State Park at Connected Lakes near our school.

Stan gathered us around, made an opening speech and asked us what we learned throughout the year. “These fish are fragile!” and “We learned to be more responsible!” were two of the many responses of our classmates.

Soon Stan organized us into teams and showed us the jobs we needed to do to release our rafterbacks.

When the tank team fed the fish, they were also very grumpy. When we showed the filters to the class, everyone said, “Howewer!”

The first job was scanning the pit tag. Once the scanner came up with the number, the recorder logged the nine-digit number. The scanner then handed the tiny tag to the disinfector, who inserted the pit tag into the fish’s belly and cleaned it.

Once Stan got a good grip on a fish, he would take the needle and inject the pit tag in the fish’s belly. When this was done, he would hand the fish to “Michael Jackson.” This was the measuring job. “Michael Jackson” wore white gloves and handled the fish carefully, measuring it in inches, then computing it into centimeters for the recorder.

Each tagged fish was placed into a clear bucket of river water, carried down to the riverbank and released.

Many “good-byes” and “Have a great life!” and “Live long and prosper” were said that day to our departing fish.

On the bus ride home, there was talk of who had measured the biggest fish and what it looked like. Raising the rafterbacks was something that really changed our fifth-grade year and made it a great memory.

Editor’s note: Amy Gelatt is the daughter of U.S. Fish and Wildlife Service biologist Patty Schrader Gelatt. Patty has been involved with the endangered fish for 20 years.

Bonytail uses fish ladder for first time

This summer, a hatchery-raised and stock-bred bonytail used the fish ladder at the Redlands Diversion Dam on the Gunnison River near Grand Junction, Colo., for the first time.

When the 350-foot-long ladder was completed in 1996, biologists weren’t sure endangered fish would use it. Colorado pikeminnow was the first species to enter the ladder. In 2001, razorback sucker also began to use it. The bonytail confirms that the fish will use it. The bonytail is a member of the sucker family. The fish is found in rivers in the western United States. It weighs up to 15 pounds and has a lifespan of 10-30 years.

Contract awarded to build passage facility

Klauer G.C., Inc., of Coalville, Colo., is the recipient of a $4.3 million contract with the U.S. Bureau of Reclamation to construct a concrete-lined facility for endangered and other fish at the Grand Valley Project Diversion Dam on the Colorado River in Debeque Canyon. Completion is scheduled for July 2004.

The fish passage will give the endangered Colorado pikeminnow, rafterback sucker and bonytail access to critical habitat blocked since the 14-foot-high diversion dam was completed in 1905. This habitat is needed to establish self-sustaining populations of the endangered fishes. It also will benefit other native fish species.

For more information, contact Jim Hoek at 970-245-6625, hoekd@usbr.gov.

Water festival educates fifth-grade students

Nearly 15,000 fifth-graders and their parents and teachers in Grand Junction, Colo., and nearby communities have learned about a broad array of water issues during the past 10 years at a Children’s Water Festival, sponsored each May by Ute Water, Clifton Water, the City of Grand Junction and the Town of Palisade. Representatives from local businesses and government agencies staff 45 learning stations on topics such as the use of water for farming and irrigation, to fight fires, to generate power, to drink and to support plants, animals and fish in the Colorado River system.

“We look forward to this event each year,” said U.S. Fish and Wildlife Service biologist Barb Osmundson. “It’s a hands-on teaching experience, and it’s the first time some students have ever seen a fish up close and personal.”

“Year of the Fish” continued from page 1

“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 improve conditions for fish where water development proceeds in accordance with federal and state laws and interstate compacts. The four endangered fish species are: humpback chub, horned reef, Colorado pikeminnow and rafterback sucker.

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Colorado River Water Conservation District
National Park Service
State of Colorado
State of Utah
Utah Water Users Association
The Nature Conservancy
U.S. Bureau of Reclamation
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“Year of the Fish” is a five-page brochure released in 2004. This brochure is a tool for use in the classroom. The students design the embroidered fish in their classroom throughout the school year.

Editor’s note: Amy Gelatt is the daughter of U.S. Fish and Wildlife Service biologist Patty Schrader Gelatt. Patty has been involved with the endangered fish for 20 years.
Recovery is based on reduction or removal of threats and improvement of the status of a species. "Recovery is achieved when management actions and associated tasks have been implemented and/or completed to allow genetically and demographically viable, self-sustaining populations to thrive under minimal ongoing management and investment of resources."

These quotes from the Humpback Chub, Bonytail, Colorado Pikeminnow, and Razorback Sucker Recovery Goals (U.S. Fish and Wildlife Service, August 1, 2003) illustrate the challenge accepted by the Upper Colorado River Endangered Fish Recovery Program (Recovery Program) when it was established in 1988 and by the San Juan River Basin Recovery Implementation Program in 1992. To meet this challenge, the fundamental elements of these two programs are directed at developing and implementing management actions to achieve recovery. The recovery goals for the endangered fish underscore the fact that achieving recovery is an endeavor that must be pursued in both the upper and lower Colorado River basins. The basin-wide recovery goals identify site-specific management actions to minimize or remove threats and specify the numbers of fish that comprise self-sustaining populations.

Program toward meeting the recovery criteria within the estimated time lines for downlisting and delisting is measured at the species level. This requires active participation and cooperation by federal, state, tribal and private stakeholders from throughout the Basin to develop and implement effective management actions. I am encouraged by the positive steps taken within the past year to establish lines of communication and to begin planning and integration of appropriate management strategies in the lower basin. Much more needs to be done, but I believe we are headed in the right direction.

After 15 years, the Recovery Program continues to be a national model of a cost-effective, collaborative effort to recover endangered species while managing water to serve human needs. The Recovery Program's success attests to the dedication and tireless efforts of its partners. It is my privilege to share with you some of the most significant accomplishments of the past year:

- Final flow recommendations were completed to benefit endangered fishes in the Gunnison, upper Colorado and Duchesne rivers.
- The final report was approved for the Coordinated Huchen Operations Study, initiated in 1999 to investigate and recommend alternatives to supply up to an additional 20,000 acre-feet of water to the 15-Mile Reach on the upper Colorado River.
- A 16-year agreement was signed by the Colorado Water Conservation Board, U.S. Bureau of Reclamation and U.S. Fish and Wildlife Service to annually deliver 18,035 acre-feet of water from Ruedi Reservoir for basic-flow augmentation in the 15-Mile Reach.
- A strategic plan was completed to prioritize and direct future habitat research and monitoring activities. Recommendations will be used to develop studies beginning in 2004.
- A floodplain habitat model was completed that will be a useful tool to identify razorback sucker habitat requirements and develop floodplain habitat management plans. Completion of management plans for the Green River and upper Colorado River subbasins is expected by the end of the year.
- An easement was obtained on 451 acres of floodplain habitat on Thunder Ranch near Jensen, Utah. Restoration of a 330-acre wetland that will serve as a nursery habitat for young razorback sucker is expected to greatly benefit recovery of the species.
- An integrated upper basin stocking plan was completed for the endangered fishes in Colorado and Utah. Recaptures of stocked razorback sucker and bonytail and documentation of razorback sucker reproduction through collection of larva in the Gunnison River demonstrate that stocking efforts are working.
- New efforts began this spring to manage nonnative northern pike, smallmouth bass and channel catfish in reaches of the Yampa, Green, and upper Colorado rivers. Parallel to these efforts was the development and implementation of a strategic communication plan to gain public understanding and support for nonnative fish management actions.
- By year's end, a final environmental assessment and programmatic biological opinion are expected to be completed for the Management Plan for Endangered Fish in the Yampa River Basin. Upon completion, the Fish and Wildlife Service will enter a cooperative agreement with the Colorado River Water Conservation District and the States of Colorado and Wyoming to implement the plan.

The road to recovery is not a high-speed freeway and not without tight turns and steep hills—but it is a well-mapped course, nevertheless, that will take us to our destination. There is more to accomplish and difficult tasks ahead, but I am confident that by working together we will achieve our common goal. My thanks to all of you who support our efforts and contribute to recovery in so many ways.

Program acquires and restores prime razorback sucker nursery habitat

In a move that biologists hope will spur recovery of the endangered razorback sucker in the Green River subbasin, the Recovery Program recently obtained an easement on 411 acres of floodplain habitat on Thunder Ranch near Jensen in northeastern Utah. This easement includes a 330-acre wetland depression that will be connected to the Green River next year to allow razorback sucker larvae to drift into it during spring runoff. The wetland provides an environment of calm, productive, warm water that will enable the larvae to grow to about 14 inches before they move back into the river's main channel to join the adult population. Habitats like this may also play a role in brevity of recovery.

The wetland is five miles downstream from a major razorback sucker spawning area and will become the first suitable nursery habitat that drifting razorback sucker larvae encounter. Scientists believe that the closer the nursery habitat is to a spawning area, the more likely it is that large numbers of drifting larvae will live long enough to reach it. The next available nursery habitat that is accessible to drifting larvae is another 16 miles downstream.

"Acquisition and restoration of this wetland will greatly benefit recovery of the razorback sucker," said Frank Pfeifer, project leader, U.S. Fish and Wildlife Service. "I am pleased with the cooperation and support we received from the owner of Thunder Ranch and look forward to a continued good working relationship."

The Recovery Program also is working to restore endangered fish habitat in other parts of the upper basin, including the Colorado and Gunnison rivers. A 23.4-acre easement recently was acquired on the Colorado River upstream from Grand Junction, Colo. This property is part of a diverse habitat area that is used extensively by Colorado pikeminnow and razorback sucker. The plan for this area is to create nursery habitat for young razorback sucker and Colorado pikeminnow and to enhance habitat for Colorado pikeminnow. Next year, larvae will be lowered in strategic locations to provide access to floodplain wetlands for the endangered fish.

Downstream from Grand Junction, the Recovery Program acquired a 25.7-acre easement from the Grand Valley Audubon Society. This is another site where a levee will be matched next year to create an additional razorback sucker nursery.

Adjacent to the Gunnison River near Whitewater, Colorado, construction to lower lower leves recently was completed on a grand pit the Recovery Program acquired. This area may become the primary nursery habitat for populations of razorback sucker being reestablished in the Gunnison River.

"These types of habitats are extremely rare in the Upper Colorado River Basin," said Recovery Program Habitat Coordinator Pat Nelson. "In these types of environments, larvae are able to survive and grow until they are ready to leave for the river. Without such habitats, it is unlikely that we will be able to recover the razorback sucker because larvae apparently aren't surviving in the main channel habitats.

"Prior to water development and levee construction, endangered fishes had access to floodplain habitats. Lowering leves will restore access to these important habitats for the endangered fish."

For more information on these and other habitat projects, contact Pat Nelson, 303-969-7322, ext. 226, pat.nelly@fws.gov.

By Bob Muth

Page director's message

Program acquires and restores prime razorback sucker nursery habitat
Delicate balance of cooperation and coordination provides water when and where it’s needed

In memory

Mike Baker, hatchery manager for the Upper Colorado River Endangered Fish Recovery Program’s Grand Valley Endangered Fish Facility near Grand Junction, Colo., died July 3, after a brave battle with cancer. Mike joined the hatchery staff in 1992. His expertise in fish pond cultures enhanced the Recovery Program’s efforts to raise endangered razorback sucker.

Mike developed an elaborate mating scheme to maintain the highest genetic diversity for the razorback sucker to be stocked into the Colorado and Gunnison rivers. He monitored the growth and stocking of razorback sucker from 98 acres of ponds throughout the Grand Valley. The Recovery Program attributes much of the success of razorback sucker propagation in the Upper Colorado River Basin to Mike’s efforts.

Mike was a good friend and a man who could always be counted on. He is greatly missed.

COlumbia division of water resources engineer RICK KRUEGER is responsible for water releases from Flaming Gorge Dam on the Green River in Utah and Navajo Dam on the San Juan River in New Mexico.

Upper Colorado River Endangered Fish Recovery Program

U.S. Fish and Wildlife Service
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T he most people, a weather forecast provides information to help them decide what to do or what to wear on any particular day. To Colorado Division of Water Resources Engineer Judy Sappington, weather forecasts are crucial to her ability to determine the amount of water available in rivers and mountain reservoirs to serve a complex variety of needs. These needs include delivery of water for crop irrigation, city water systems, power production, recreation and recovery of endangered Colorado River fishes.

Water is limited in the arid state of Colorado and demands for it are high, especially during the past several years of extreme drought. Deciding who gets the water and when is not easy. A Delicate balance of cooperation and coordination provides water when and where it’s needed.

U.S. Fish and Wildlife Service.

Endangered Fish Recovery Program’s Grand Valley Water Entitlements Group: Colorado Division of Water Resources Division 5 Engineer, Colorado Water Conservation Board, Grand Valley Irrigation Company, Grand Valley Water Users Association, Orchard Mesa Irrigation District, the U.S. Fish and Wildlife Service, Managers representing other state, federal and private water management agencies also join the call. These “other participants offer valuable input to the overall operation of the Colorado River with the common goal of meeting the water needs of the Upper Colorado River Basin water users,” said Dick Proctor, manager of the Grand Valley Water Users Association, one of the largest irrigation companies in the Grand Valley. Before each call, Judy checks daily and weekly weather forecasts. She studies computer-generated data from river gauges to determine how much water is available in the mainstem Colorado River and its tributaries. She also compiles and reviews reports to identify the amount of water in reservoir storage facilities.

Judy relays this information to conference call participants and asks if their water needs are being met or if they have any particular concerns for the upcoming week. Based on their input, Judy discusses changes with reservoir operators to adjust dam releases that week to ensure the requested water is delivered on time.

Judy’s office in Glenwood Springs maintains water entitlement records for more than 2,000 Colorado water users. When HUP participants request water releases, Judy documents this information to ensure their water rights are upheld under Colorado law. To determine how much and when water should be released from a dam, Judy considers the time it will take for water to reach the intended downstream destination which could be as long as two or three days. She also accounts for water lost during transport from factors such as evaporation.

This year, the Bureau of Reclamation, the Denver Water Board and the Colorado River Water Conservation District maintained storage pools totaling 27,500 acre-feet of water to benefit the endangered fishes. This amount of water varies each year depending on water conditions in the Upper Colorado River Basin.

As the person designated to manage this water for the Recovery Program, U.S. Fish and Wildlife Service Hydrologist George Smith checks river flows daily during the summer and early fall and talks with the biologists who conduct smolt recovery work.

During a conference call on July 9, George expressed concern that if river flows continued to drop dramatically as a result of the drought, there would not be enough water for the endangered fish in the 15-Mile Reach of the Colorado River from Palisade to the confluence of the Gunnison River near Grand Junction, Colo. He asked that 200 cubic feet per second (cfs) of water designated for the fish (fish water) be released by the following Friday if river conditions did not improve.

“The past few years, it’s been hard to know how much water to ask for,” George said. “There is only a certain amount of fish water in 2003 and when that water’s gone, there isn’t anymore. Based on the 200 cfs rate, this water would last 70 days. If the severe drought continued, it could mean no water for the fish by the end of September. We’re gambling that there will be some rain or early snowfall to carry us through until winter.”

Also during the call, Dick Proctor said he may need water that week to meet his customers’ irrigation needs. Judy noted that if Dick requested water at the same time as the Recovery Program, she would need to notify dam operators a few days ahead to make sure the water was delivered on time.

As the agency in charge of federal reservoirs, the Bureau plays an important role in operating the reservoirs to meet water requests while at the same time addressing water conservation issues. All HUP participants keep a watchful eye on the river and consider how water releases might impact those who enjoy the river for recreational uses such as rafting and fishing. This can be quite complex and sometimes difficult.

“We have to be aware that releasing certain volumes of water at one time might result in flows that are unsuitable for anglers and endangered fish,” Judy said. “Yet those might be the very flows that are preferred by river rafters. We also have to factor in the ability to maintain certain water storage levels in the reservoirs. All of these and other factors must be considered when we make our decisions.”

The cooperative nature of the weekly HUP call improves communication and allows water managers to help make decisions about water distribution.

“Since it was formed, the HUP has created an open process for delivering water that enables everyone’s voice to be heard,” said Russ Ulenberg, technical services division manager, Bureau of Reclamation, who has participated in this process since 1996. “The group tries to work out a compromise that takes everyone’s needs into consideration.”

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Editors note: A similar piece is in place for water releases from Flaming Gorge Dam on the Green River in Utah and Nezper Dam on the San Juan River in New Mexico.