



LEAVING SOME

FOR THE FISH



Conservation-minded ranchers helped save trout and Arctic grayling by giving up precious water during last year's record-breaking drought. **By Peggy O'Neill**

Cal Erb looks over his stretch of Montana near Wisdom, watching clouds build over the Pioneer Mountains in the distance. It's late October 2021, and there's a hopeful chill in the air. Erb's family, which has been involved in ranching since his grandfather was a cattle trader, has owned this particular piece of land since 1988. Erb sighs as he reflects on the last several months.

"It was not a pleasant year," he says.

The drought of 2021 hit the Big Hole River ranching community hard. Though winter snowpack and precipitation in the drainage were above average early in the year, snowpack peaked on April 1—two weeks earlier

than usual, according to Matt Norberg, a Montana Department of Natural Resources and Conservation (DNRC) hydrologist. Then the snowpack started melting far faster than usual. By May 1, it had been reduced to 68 percent of normal.

"Precipitation during the late spring and summer months is critical to maintaining streamflows after the snowmelt has passed," Norberg says. "But June, July, August, and September were dry, dry, dry."

The National Weather Service reported that June and July were the driest period on record for the Big Hole Valley. The surrounding Beaverhead County experienced record-high temperatures. Wildfires near Wisdom and Wise River drove elk herds

down from surrounding mountains seeking what little grass was available on the parched ranchlands.

Erb says he was 700 tons of hay short for the year, which equals a loss of about \$140,000. With no pasture to graze his yearlings, he had to ship them early and about 50 pounds light, compounding the loss.

"You can't make water," he says.

THE GRAYLING AGREEMENT

You can definitely conserve it, though.

In the Big Hole Valley, Erb and many fellow ranchers kept the drought's effects from being even worse—for themselves and the Arctic grayling and trout in the river. The Big Hole water gauge nearest to Erb's prop-

PAYS TO SAVE Below: Big Hole rancher Tom Mitchell talks to Jarrett Payne, FWP riparian ecologist, about conservation measures that kept more water in the river during the 2021 drought, benefiting beleaguered Arctic grayling (above), a species that has been petitioned for federal endangered species listing.



erty measured the lowest flow since it was installed in 1988, the year the river near Wisdom went dry for 24 days. Yet as the

TOP TO BOTTOM: PAT CLAYTON/ENBRETSON UNDERWATER PHOTOGRAPHY; ELIZA WILEY



BAD, BUT NOT AS BAD Above: The Big Hole near Wisdom ran extremely low in September 2021. But thanks to conservation measures taken by landowners working with state and federal agencies, water continued to flow, saving Arctic grayling and other salmonids popular with local and out-of-state anglers. “There’s now around 1,000-plus breeding adult grayling in the Big Hole, a 168 percent increase” over the past two decades, says Jarrett Payne, FWP riparian ecologist. Below: The same stretch in September 1988, when the river ran dry for 24 days during a lesser drought, before the conservation measures were in place.



landscape baked again in 2021, the river and tributary water that ranchers use for irrigation continued to flow—though not enough to grow all the hay they needed—and fish populations survived.

Erb, along with several dozen neighbors, participate in a program called the Big Hole Arctic Grayling Candidate Conservation Agreement with Assurances (CCAA). This mouthful of a federal program is helping keep ranching, grayling populations, and trout fishing alive on the Big Hole.

Under the agreement, participating landowners voluntarily carry out certain conservation measures on their properties to benefit Arctic grayling, a sail-finned salmonid species once common in the watershed but now so rare it has been petitioned for listing as federally endangered. In return,

“Had we exercised our entire water right, we could have dried up the river. Lots of sacrifices were made to keep the water flowing.”

the U.S. Fish & Wildlife Service agrees not to impose strict regulations on the landowners if the species is ever placed on the endangered species list.

So far, it looks like that designation won’t happen anytime soon. In 2020, the USFWS decided not to list the species, citing water conservation and stream improvement measures gained from the CCAA as a major reason.

Many Big Hole landowners had already been using less of their legally allotted water before entering into the conservation agreement. But the Endangered Species Act looming in the distance became an added incentive for more area ranchers to follow suit.

Though the beleaguered grayling is the primary beneficiary, the deal also leaves more water in the Big Hole for hay irrigation. And it helps the river’s brown, rainbow, and westslope cutthroat trout, which attract anglers who boost the local economy. “Big

Peggy O’Neill is chief of the FWP Information Bureau in Helena.

Hole trout angling is a side benefit of the CCAA that doesn’t get a lot of attention but really needs to,” says Eileen Ryce, head of the Montana Fish, Wildlife & Parks Fisheries Division.

Currently 32 landowners have jointly enrolled more than 160,000 acres of private land in the Big Hole CCAA, says Jarrett Payne, an FWP riparian ecologist who specializes in grayling habitat. As part of the agreement, a team from FWP, the federal Natural Resources Conservation Service (NRCS), DNRC, and USFWS works with landowners on developing fish habitat enhancement plans. Enhancements include improving streamflows, repairing stream habitat, removing or modifying barriers that block fish passage, and adding screens to reduce the number of grayling trapped in irrigation ditches.

Most important is to keep as much water in the Big Hole and its tributaries as possible. That means ranchers voluntarily don’t use all the water to which their water rights entitle them. “Had we exercised our entire water right, we could have dried up the river,” Erb says. “Lots of sacrifices were made to keep the water flowing.”

MORE PRECISE WATER USE

Upstream from Erb, near Jackson, Tom Mitchell walks along Governor’s Creek, a Big Hole tributary, with his dog Gemma. The ranch has been in the Mitchell family for four generations. “I don’t consider myself a rancher; I’m just here taking care of the ground,” Mitchell says. He points to several projects that were part of the CCAA enhancement plan for his property, including newly planted willows anchoring the stream bank and a livestock tank where thirsty cattle can drink so they don’t trample the bank trying to reach stream water. With a new screw gate, Mitchell can control water flow into his irrigation canals more precisely than he could with the old flashboard diversion gate it replaced, allowing him to leave more water in the creek.

On the Big Hole are 600 points of diversion—places where the river or a tributary goes through a gate, plank dam, or other device that controls water flow—and many are shared. Landowners open a gate and divert water from the main river or a tributary



WATER-SAVING DEVICE FWP riparian ecologist Jarrett Payne with a screw gate that allows landowner Tom Mitchell to more precisely control water flow from Governor’s Creek (below), a Big Hole River tributary, than with the previous flashboard diversion gate it replaced.



into an irrigation ditch that feeds hayfields.

FWP’s Payne says that throughout 2021, landowners in the CCAA worked together to keep as much water in the Big Hole as possible. It was harder for some than others. “There were painful conversations and tense decisions—decisions that were financially challenging for some people, especially when they needed to grow grass,” he says.

Mitchell says his pastures never greened up. The summer rains between late July and Labor

Day that he remembers from his youth, which could shut down operations for several days, never came. But he kept to the plan. “I didn’t want to be the guy drying up the river,” he says.

Roughly 50 miles downstream, near Wise River, Sonny and Phil Ralston run a ranch that has been in their family since 1886. The almost total lack of rain last summer dried up their hayfields. But they too fulfilled their agreement to keep water in the Big Hole. The CCAA enhancement team helped them plant shade-

TOP: BRIAN WHEELER/BIG HOLE RIVER FOUNDATION; BOTTOM: DICK OSWALD, FWP

PHOTOS: ELIZA WILEY

producing (and water-cooling) willows along a section of Deep Creek, which flows through their property before draining into the Big Hole. In addition, the team installed new fencing and stock tanks that keep cattle away from the creek. “This is proof that cows and streams can coexist,” Payne says.

So can cows and grayling. According to Payne, the Big Hole population declined slightly from 2020, but the number of breeding adult fish contributing to the population was higher than average. “There’s now around 1,000-plus breeding adult grayling in the Big Hole, a 168 percent increase since the CCAA first started,” he says. “We’re pretty happy with that, especially considering we had almost no precipitation last summer.”

POST-GOVERNOR’S DECREE

In the nearby Ruby River watershed, about 75 landowners also left potential irrigation water in the river. The landowners hold contracts with the Ruby River Water Users Association that determine how much water they can use downstream of the dam on Ruby River Reservoir.

The DNRC owns the dam; management is handled by dam tender Bill Wood, who works for the association. “My primary role is to control the amount of water that comes out of the reservoir, deal with irrigators, and maintain minimum flows in the river for FWP,” Wood says.

Low water in the reservoir last summer meant “we had to make cuts on how much water was allotted per contract” as water was released, Wood says. In the months that followed, when the situation didn’t improve, irrigators and Wood communicated closely to figure out who would take water, and when, to ensure some was left for the Ruby’s brown and rainbow trout. “It was a tough summer on irrigators and fish,” Wood says.

And it came at a cost. Father and son ranchers Neil and Jake Barnosky could grow only about two-thirds of their typical annual hay crop. “We had to buy a lot of expensive hay,” Jake Barnosky says.

Similar sacrifices were made by other contract holders, Wood says. “We are extremely fortunate we have a group of people who work well together. We could have dried up the river at any time.”

This arrangement has roots dating back



SHARED SACRIFICE Jake Barnosky and his dad Neil Barnosky, who run a ranch on the Ruby River, worked with other landowners to give up water in 2021 to benefit trout. Below: The Barnoskys’ headgate, used to take water from the Ruby for irrigation. Without those sacrifices, “there wouldn’t be any trout in the lower end of the Ruby,” says Matt Jaeger, the local FWP fisheries biologist.



nearly 30 years ago, when the reservoir and the Ruby River dried up in 1994. The governor’s office intervened the following year with a consent decree calling for a drought-management plan with flow triggers.

Four bridges cross the lower Ruby River. The decree set a minimum flow of 20 cfs (cubic feet per second) at each bridge.

During the three times last summer when streamflow dropped below the decree’s threshold at one or more of the

bridges, DNRC released additional water from the dam and landowners responded quickly by reducing the flow diverted by headgates up and down the river.

The governor’s decree expired in 2002, but water users still voluntarily follow the plan and reduce irrigation withdrawals when the river drops too low, says Matt Jaeger, FWP’s Beaverhead-Ruby program manager.

“The reasons vary among irrigators, but my sense is that it’s some combination of want-



THE GOOD OL’ DAYS During years of abundant snowfall and steady rain, the Big Hole River and its tributaries flow steadily and the valley remains lush. But consistent drought there and throughout much of Montana has inspired landowners to save water to help save trout and grayling and keep cattle fed.

ing to avoid additional government intervention and valuing and taking pride in preserving the fishery,” he says.

As low as the Ruby dropped in 2021, it could have been worse. “In previous years like this one, the river would have been dry,” Jaeger says. He credits the water users with saving the fishery: “If they hadn’t made sacrifices, there wouldn’t be any trout in the lower end of the Ruby.”

Elsewhere in western Montana, FWP has secured more than a dozen instream flow leases on critical fish spawning tributaries. Through these arrangements, landowners temporarily lease water rights to the department so that enough flow remains in streams during spring and summer.

Andy Brummond, an FWP water conservation specialist, says the leases are vital during droughts. “Sometimes you only need to protect 2 or 3 cfs for newly hatched trout to survive in a spawning tributary that’s no wider than a sidewalk,” he says. In addition to the FWP arrangements, Trout Unlimited and the Clark Fork Coalition lease instream rights on another 40 or so stream stretches across western Montana.

HOOT OWLS AND INSTREAM FLOW

Help for the Big Hole’s grayling and trout also came from anglers and guides, who supported FWP regulations that closed fishing each day from 2 p.m. to midnight throughout the hot summer. These “hoot owl” restrictions protect salmonids already suffering from low oxygen levels in waters approaching 70 degrees from added stress.

Ryan Barba, co-owner of Sunrise Fly

“In Montana, we do wild trout management and rely on water to keep those wild fisheries healthy and productive.”

Shop in Melrose, has been guiding in the area for 16 years. Though drought and wildfires may have deterred some out-of-state anglers from booking trips, he says his overall business did not suffer much in 2021, even with the restrictions. The Big Hole

continued to flow, and anglers continued to catch fish in the cooler morning hours. “More water is being left in the upper Big Hole for the fish. The CCAA is definitely helping and working,” Barba says.

Ryce, the FWP fisheries chief, says keeping more water in rivers and tributaries is essential. “In Montana, we do wild trout management and don’t use hatcheries to produce fish for our rivers,” she says. “We rely on water to keep those wild fisheries healthy and productive. That’s why water conservation like what we’re seeing on the Big Hole, the Ruby, and elsewhere is essential to the state’s entire stream and river trout fishery operation.”

Key to ongoing water conservation has been the work of watershed groups like the Big Hole Watershed Committee and Madison River Foundation, which bring together landowners, fisheries biologists, hydrologists, and nonprofits to build relationships and trust. “Those relationships sometimes take decades to build,” Ryce says. “But over time they produce recognition of the universal benefits to all Montanans that come from water conservation—and the shared sacrifice required to make that happen.”