



CENTRAL MONTANA OASIS Anglers fish for rainbow and brown trout on Big Spring Creek outside Lewistown. Restoration of the Brewery Flats stretch of the stream was one of the first major habitat projects funded by FWP's Future Fisheries Improvement Program.

PHOTO BY JOHN WARNER

BETTER FISHING TOMORROW

FWP's Future Fisheries Improvement Program improves angling across Montana by restoring and enhancing the places where fish live and reproduce. **By Allen Morris Jones**

What makes for a fishable trout stream?

For starters, clean, cold water, and enough of it. Add to that a few meanders, or bends, a gradient so that water picks up speed here and there, pockets of deep water to hide fish from predators, some gravel where trout spawn and underwater insects live. And enough public access so that anglers can actually fish it.

You wouldn't necessarily think to put stream advocates on that list. But these days, every watershed needs a champion. Often it needs a team of champions, with different personalities and dissimilar interests coming together on behalf of the fish, the water, and the health of the surrounding watershed.

For 20-plus years, the Future Fisheries Improvement Program, administered by Montana Fish, Wildlife & Parks, has been a workhorse of fish habitat conservation. On hundreds of projects across the state, fisheries biologists and partners—ranging from ranching families and local conservation clubs to federal and state agencies—have been using the program to protect and improve Montana's fishable waters.

Say a landowner needs an aerator to prevent winterkill in a fishing pond. Or a Trout Unlimited chapter wants to prevent an eroding riverbank from washing away, or a conservation group wants to work with a landowner to fence cattle from a stream. Or the U.S. Forest Service wants to install a

culvert under a road so that bull trout can move upstream to spawn.

One of the first options for people who want to make these and other public habitat improvements is to apply for a Future Fisheries grant.

Ever wondered what FWP does with your fishing license dollars? An important share of that money goes toward making better homes for fish and improving angling opportunities across Montana.

HALF-HIDDEN BLUR

Dry Creek isn't a stream that's ever mentioned in Montana fishing guides. Flowing into the East Gallatin River just outside Belgrade, it's little more than a half-hidden

blur as you drive past on your way to Costco, one of those generic Montana channels that's overused and underappreciated.

Yet the stream holds some nice trout—and could produce even more.

A few years ago, Steve Carlson heard about Future Fisheries. He was representing a group of fellow landowners who wanted to improve trout habitat in their particular stretch of Dry Creek north of town in a way that benefited the larger river system. "I feel that it's incumbent on us as landowners to be good stewards," Carlson says. He thought a public grant might help further the group's goal.

Pat Byorth, director of Montana Trout Unlimited's Water Project, came on board as project manager. For Carlson and Trout Unlimited to receive Future Fisheries money for the project, it needed to demonstrate an obvious public fisheries benefit. They looked at a diversion ditch on the stream south of Dry Creek Road that blocked fish swimming up from the East Gallatin from reaching gravelly spawning habitat. Could part of the project include helping fish move past the diversion, thus reconnecting Dry Creek to the East Gallatin? If so, that would benefit the trout fisheries in the creek as well as the larger East Gallatin, and even the famous Gallatin River itself. "With river systems, whenever you benefit the small stuff, you help the big stuff," says Michelle McGree, coordinator of the Future Fisheries Program.

Byorth and Trout Unlimited put Carlson in touch with multiple partners, including American Rivers and the Greater Gallatin Watershed Council. Trout Unlimited took the lead on applying for a Future Fisheries grant. That \$50,000 grant was paired with a financial commitment from local landowners. The first phase

Allen Morris Jones is a writer, editor, and publisher in Livingston.

will involve planting willows and other shrubs along sloughing stream banks. The eroding soil makes the stream shallower and warmer, and silt covers gravel where trout spawn and aquatic insects live. In addition to stabilizing the bank, the vegetation will provide shade to keep the stream cool in summer. Crews will also narrow some stretches to increase stream velocity, allowing the faster water to scour holes where trout can hide from predators and to rinse silt from spawning gravel.



“With river systems, whenever you benefit the small stuff, you help the big stuff.”



ADDING COLD WATER

On a warm day last May, Byorth and McGree walk through Lonny Walker's property south of Dry Creek Road, downstream from the habitat improvement project. Walker, one of a dozen landowners who irrigate from a diversion on his property, describes how a

bypass structure will allow fish to move upstream. This work is being funded in part by a second Future Fisheries grant. Walker gestures toward survey stakes, their ribbons flapping in the wind. Work has been temporarily delayed by heavy rains, frustrating everyone. Because so many different entities were involved—ranchers, trout anglers, state officials—it has already taken a year to get this second phase of the project going.

Byorth, McGree, and Walker stop to look at the water in Dry Creek flowing past. "This project is about different Montana characters working together," says Byorth. "We all have this fundamental desire to do something good for the watershed. And that's what binds us."

Why Dry Creek? "If you can reconnect a stream that flows in summer at 6 cfs [cubic feet per second] to a river that gets down to 20 cfs in August, then you're adding a lot of cold water to the East Gallatin and providing a coldwater refuge for its fish," Byorth says. "Rainbows and browns, and also native long-nose suckers, white suckers, and mountain whitefish—they all rely on a connected system. That's why Dry Creek."

McGree walks to one side, considering the water. She was trained as a field biologist, so all this is familiar to her—eyeing the course of the stream, estimating flows, considering how a deepening here or a bend there would create better trout habitat. "This project used two separate Future Fisheries grants to produce a range of improvements on Dry Creek. Together, they are enhancing the entire system," she says.

THE NATURAL HATCHERIES

For decades, FWP raised trout in hatcheries and stocked them in streams and rivers. But after studies showed that stocking fish depressed rather than enhanced natural populations, the department discontinued



DRY CREEK Above: Dry Creek property owner Steve Carlson walks along eroding banks. Left: Trout Unlimited's Pat Byorth (left) and Lonny Walker, a landowner who irrigates using water from Dry Creek. Right: The diversion dam where a fish bypass structure is being built so trout can reach spawning habitat. Far left: Michelle McGree, coordinator of FWP's Future Fisheries Improvement Program; a westslope cutthroat trout.



the practice. (Stocking trout, walleye, and other species still works in reservoirs, lakes, and ponds.) Instead, fisheries managers realized they could protect and improve habitat so that the streams and rivers themselves produced more wild fish—in other words, help nature be its own "hatchery."

Habitat studies and improvements began in the 1960s, and by the 1980s dozens of projects were completed or under way across Montana. When there wasn't enough money to meet the growing need, the Montana Legislature responded with the 1989 River Restoration Act. The legislation earmarked a small amount from each fishing

license for stream habitat restoration in western Montana. The legislature has since revised and expanded the popular program, now called Future Fisheries Improvement. New legislation also allows funds to be used for all native species, which provides more warmwater angling opportunities in eastern Montana. Though any habitat project that benefits wild fish is eligible for funding, Future Fisheries puts high priority on native species like bull trout, cutthroat trout, channel catfish, sauger, and shovelnose sturgeon.

The work of enhancing fish habitat is part biology, part civil engineering, part heavy-duty construction. Think dump

trucks, backhoes, cement mixers, and even helicopters. Crews dig out new stream channels, install tons of boulders and dirt, build concrete fish barriers, fly in thousands of discarded Christmas trees as reservoir habitat, pound in miles of stream-side fencing, and plant forests of willows along river banks.

Just as it takes heavy machinery to damage fish habitat, it requires much of the same equipment to restore it. It can be difficult for an angler peacefully wading a stream or river to imagine that, just a few years earlier, the same area might have echoed with the din of diesel engines.

TOP TO BOTTOM: ALLEN MORRIS JONES; JESS MCGLOTHLIN

ALL PHOTOS: ALLEN MORRIS JONES



What Future Fisheries Pays For

The Montana Legislature created the Future Fisheries Improvement Program to produce more and better fishing opportunities by protecting and improving fish habitat. That work includes:

Installing fencing along streams to keep cattle from trampling banks and damaging vegetation, while creating nearby watering sources for livestock.

Leasing water rights to maintain in-stream flows.

Planting willows and other vegetation along streams to stabilize eroding banks and create shade that cools the water in midsummer.

Installing screens on irrigation diversions to prevent small fish from swimming into ditches and becoming stranded.

Removing barriers, or installing fish ladders or bypass channels around barriers, to help fish move upstream.

Building barriers to prevent non-native trout from competing or hybridizing with genetically pure native cutthroat.

Reconstructing stream channels modified from their natural form by roads and other development.

Installing habitat structures in lakes and reservoirs to create fish cover or spawning areas.

Future Fisheries in Action

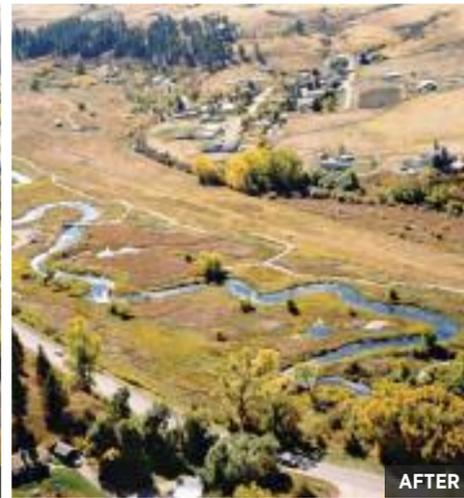
Shown here are a handful of the more than 600 fisheries habitat improvement projects that FWP's Future Fisheries Improvement Program has helped fund over the past 20-plus years.



Mattie V Creek, which supports native westslope cutthroat trout, is a tributary of Ninemile Creek northwest of **Missoula** that was degraded decades ago by placer mining. Beginning in 2010, crews removed mine waste, constructed a new channel, and revegetated the stream banks and floodplain.



A "perched" culvert on **Cottonwood Creek** near **Seeley Lake** blocked westslope cutthroat and bull trout. Upstream passage was restored by removing the culvert and replacing the road crossing with a free-span bridge.



Before restoration, the Brewery Flats stretch of **Big Spring Creek** north of **Lewistown** was a 2,600-foot ditch that ran next to Montana Highway 238. "You couldn't even fish from the bank without your backcast hooking a big pickup driving by," a regional FWP fisheries manager told *Montana Outdoors* in a 2002 article. Crews excavated the old channel, lined it with gravel, revegetated the banks, and diverted water into the restored reach.



A diversion dam on the **Musselshell River** about 25 miles east of **Harlowton** was renovated to fix the failing structure and reduce water loss. The Future Fisheries Program helped pay to build a rock ramp that allows migrating fish to swim around the dam to reach spawning areas upstream.



The **South Fork Judith River** in the **Little Belt Mountains** is home to genetically pure westslope cutthroat trout. To prevent non-native rainbow trout from hybridizing with the native fish in the upper 25 miles of the drainage, crews installed a large fish-passage barrier.



Rattlesnake Creek is a spawning tributary for bull, westslope cutthroat, rainbow, and brown trout on the Clark Fork River near **Missoula**. For decades the Williams ditch diverted water and fish from the creek to an irrigation system. A new fish screen separates the water from the fish so trout can stay in the creek while irrigators use their water.



For years, cattle had overgrazed the banks of the **North Fork Smith River** near **White Sulphur Springs**. That removed vegetation that once shaded the water, and it caused banks to collapse. New fencing keeps the livestock away from the banks, which are now lush with vegetation. An off-stream station provides the cattle with drinking water.



AT A GLANCE: FWP's FUTURE FISHERIES IMPROVEMENT PROGRAM		Matching dollars for approved projects \$56.5 Million	\$68.5 Million Total dollars spent on habitat restoration	610 Projects completed
23 Years the program has been in effect	\$17.9 Million Dollars approved by the Fish & Wildlife Commission	60 Projects pending or ongoing	234 Miles of riparian fence installed	129 Miles of restored river channel
48 Fish screens placed on irrigation diversions	192 Structures installed or removed for fish passage	13,200 Lake/reservoir spawning enhancement structures	38 Game fish species benefiting from restored habitats	234 Cubic feet per second added to in-stream flow

Over the past two decades, Future Fisheries has granted nearly \$18 million to more than 600 habitat improvement projects across Montana. Funding for the state program comes from Montana resident and nonresident fishing license fees and the Resource Indemnity Trust Fund (taxes collected on gas, coal, and other energy development). Remaining funds come from watershed groups, Trout Unlimited, private landowners, companies required to mitigate hydroelectric projects, federal agencies such as the Environmental Protection Agency and the U.S. Fish & Wildlife Service, and other sources.

While occasionally the sole source of funding for habitat improvement projects, Future Fisheries is usually paired with other state or federal grants or private funding sources.

To qualify for Future Fisheries funding, an application goes through an extensive review process by FWP and a 14-person citizen panel appointed by the governor that includes high school students, mining professionals, stream restoration experts, agricultural interests, and others. “It’s an impressive cross section of Montanans,” says McGree, FWP staff liaison for the panel. Final approval for each proposal comes from the Montana Fish and Wildlife Commission.

McGree reviews project applications, coordinates with contractors and consultants, approves payments, and ensures projects comply with state statutes. She also regularly visits sites of proposed and completed projects. One place she has toured several times is Stonewall Creek, a key tributary of the Blackfoot River north of Lincoln.

MESSED UP BY MINING

The Stonewall Creek restoration is typical of the projects that Future Fisheries was created to fund. Containing native westslope

cutthroat trout, the stream flows through a mix of national forest, state property, and private land. Over the past century, gold mining operations extensively damaged its upper reaches. A three-quarter-mile stretch of tailings piles—some 30 feet high—rerouted the main channel away from the historical floodplain and blocked spawning tributaries. As a result, the cutthroat population in that stretch was nearly half that of less-disrupted reaches downstream.



“Native trout require clear water, cold water, connected water, and complex water.”

The Big Blackfoot Chapter of Trout Unlimited took the lead on applying for a Future Fisheries grant. The chapter wanted to remove the miniature mountains of crushed rock, restore the floodplain, increase stream connectivity and function, and revegetate the banks.

“We’re interested in restoring the ‘Four Cs,’” says Ryen Neudecker, a fisheries biologist for the chapter. “Native trout require clear water, cold water, connected water—we’ve documented cutthroat trout moving almost 100 miles in this watershed to spawn—and complex water. Fish love [under-

water] wood, undercut banks, and pools.”

Trout Unlimited started the project, which was finished in 2016, but other parties, such as local irrigators and the U.S. Forest Service, were equally invested.

Driving up a rough gravel road toward Stonewall Creek recently, George Liknes, a USFS fisheries biologist based in Lincoln, pulls up next to a pile of boulders and a mound of gravel. “All these boulders came from the placer mining piles,” he says. “They’ll be used as de-limiters—barriers like those used in campgrounds or for road closures. The gravel will be crushed and used on the roads leading to and from the project.”

At the lower end of the project area, he and Neudecker walk along a flat part of the floodplain in the tight valley, noisy with the rushing stream. After tailings piles were removed, the area was planted with native seeds, seedlings, and saplings. Everything is just starting to bloom.

Neudecker and Liknes have collaborated on several trout habitat improvement projects over the years, and there is an easy familiarity between them. “Every year, the Big Blackfoot Chapter of Trout Unlimited has

three or four projects funded through the Future Fisheries Program,” Neudecker says. Federal funding sources often require a “non-federal match” of money. Funding from Future Fisheries fills that role. According to Neudecker, “That state match is critical for leveraging funds from the U.S. Fish & Wildlife Service or the U.S. Forest Service.”

We step over some old downed trees that crews had trucked to the site and scattered over the newly recovered floodplain. “They create what we call microsites,” Neudecker says. “They trap moisture and spring heat to



FISH ON While Future Fisheries focuses funding on habitat projects, the ultimate goal in many cases is to improve angling opportunities for (clockwise from top) trout and warmwater species such as sunfish and channel catfish. Far left: Forest Service biologist George Liknes and Trout Unlimited biologist Ryen Neudecker survey the restoration of Stonewall Creek, a tributary north of Lincoln containing west-slope cutthroat.



encourage seeds to take off on their own. And then we’ve put in swales to collect groundwater so that when the area floods in spring, young fish have places where they can survive.”

Liknes says crews have installed 27 log structures in the stream itself, turning it from a one-mile-long riffle into a series of riffles, runs, and pools that provide more habitat diversity. But most of the work on the Stonewall Creek project was done in the floodplain. “One of the benefits of having a

restored floodplain is that it stores water and then, in late summer, the water seeps back into the stream,” says Neudecker. “That helps long term with in-stream flows and other things trout care about.”

“And irrigators,” Liknes adds. Neudecker bends over some new growth. “These are all native forbs—wild strawberries, yarrow, spirea. It’s kind of cool when you uncover the floodplain. The native seed bank is still there.”

Heading back to the vehicle, Neudecker

reiterates how the Big Blackfoot Chapter relies on Future Fisheries to help improve the area’s trout habitat and trout angling. “One thing that’s so great about the program is that it doesn’t have a lot of bureaucracy or burdensome grant-reporting requirements,” she says. “There’s enough so that public funds are used responsibly. But at the same time, you can actually get things done in the field, like what we’ve seen here. To me, it’s the perfect balance of what a grant program should look like.”