

REBIRTH

of the **UPPER CLARK FORK**



JOHN LAMBING, INSET PHOTO: JOSH BERGAN

When the fishing is slow, my mind tends to wander. On a sunny spring day on the Clark Fork River, when the trout don't seem interested in my offerings, I'm daydreaming about many things, including the river itself.

One thing I ponder is that just being able to fish this river at all is sort of a miracle. That's because the Clark Fork of the Columbia, as it's officially called, has been abused beyond measure. Over the past century it has been polluted, dredged, dried up, and dammed. Yet despite decades of mistreatment, the river and surrounding lands are showing signs of renewal. That progress and potential are due to hard work—by conservation-minded Montanans, federal and state agencies, and industry—to repair past damage and learn to consider the Clark Fork in a new light.

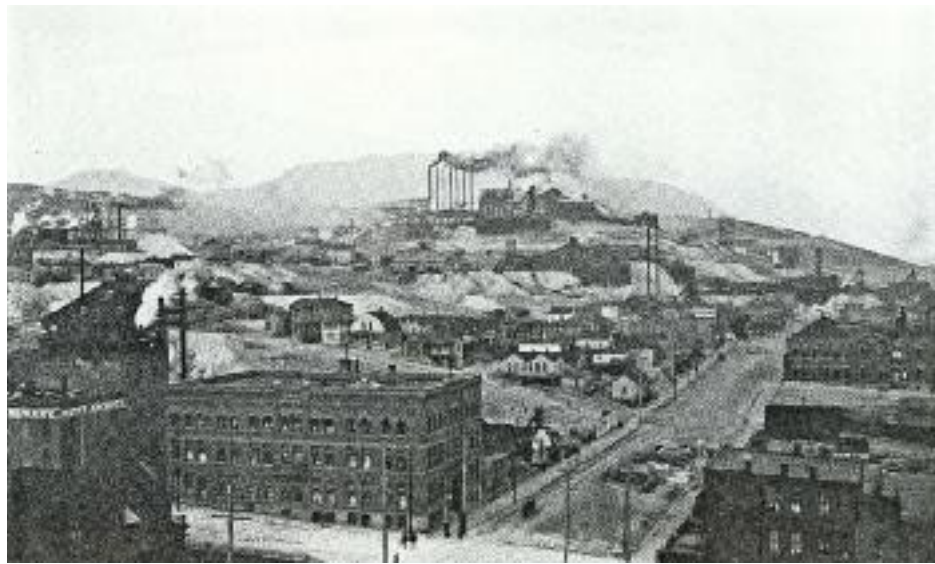
PAID A PRICE

Named by the Corps of Discovery for its co-leader in 1806, the Clark Fork begins a few miles northwest of Butte where Silver Bow Creek and Warm Springs Creek meet. From there to the Idaho Panhandle 310 miles downstream, it's one of Montana's most visible rivers, running alongside I-90 and U.S. Highway 200.

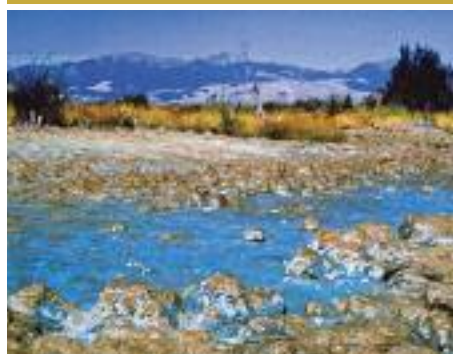
The Clark Fork is also one of Montana's most industrial waterways. First it was a pathway for Native Americans, then a watery highway for explorers like Lewis and Clark and Canadian David Thompson, then a conveyor belt to move millions of logs downstream. Where the upper Clark Fork (upstream from Missoula) meets the Blackfoot River at Bonner, copper tycoon William A. Clark (no relation) built a hydropower facility. The famous Milltown Dam generated electricity to run two nearby sawmills that produced railroad ties and beams for upstream copper mines.

During the height of World War II, Butte's mines supplied ore for Anaconda's smelters across the valley. Montana copper went into

NO ONE
CAN MAKE A
NEW RIVER...
EXCEPT MAYBE
THEY CAN. BY TOM REED



A RIVER GETS RUINED Clockwise from above: Anaconda Hill in Butte, 1900, when copper mining was revving up; a log jam after the flood of 1908, with the Bonner mill visible in the background; the Silver Bow “sewer,” where mine tailings were dumped into Silver Bow Creek; the Clark Fork River pours over Milltown Dam during the 1908 flood; a sign warning of mine pollution in the upper Clark Fork, designated as the nation’s largest Superfund site in 1992; “slickens,” blue copper salts of mine tailings, deposited on the floodplain of the Clark Fork River near Galen.



everything from Jeeps to B-24 Liberator bombers, and the thriving cities of Butte and Anaconda rightfully claimed significant roles in the Allied victory. “It was probably worth it, given the national security stakes at the time, but the river and its tributaries paid the price for all that mining,” says Pat Saffel, FWP regional fisheries manager in Missoula.

Degradation began in the upper reaches of the river system, where miners used pickaxes, then steam shovels, then bulldozers to dig up silver, gold, and copper valued by a growing nation. Open mineshafts and piles of mining waste exposed pyrite-rich ore to oxygen and water. The chemical reaction produced sulfuric acid, which washed into tributary streams like Silver Bow Creek, Flint Creek, and the Little Blackfoot River. Along the way it killed aquatic insects and young fish. Downstream cities, towns, and ranches

added effluent from livestock and humans to the mix.

The greatest single assault on the Clark Fork came on June 2, 1908. Snow had choked Butte all spring. In late May came days of rain. On June 2, almost an inch fell, washing mining sediment off the sediment piles surrounding the city. Streams running orange with acid mine drainage fed into dirt streets and alleys that quickly turned into raging

torrents of sludge. The Clark Fork River exploded from its banks. The flood carried millions of tons of silt laden with arsenic, lead, zinc, and copper downstream to Milltown Dam, built just six months earlier. The dam held, and the toxic sediment settled. There it sat for more than a century.

TOXIC TIME BOMB The underwater sludge behind Milltown



BAD DIRT Removing toxic sediment from below Milltown Reservoir after drainage.

The dam held, and the toxic sediment settled. There it sat for more than a century.

Tom Reed has written books about horses, trout fishing, and grizzlies. He lives in Harrison.

Dam posed a potential health hazard to aquatic life downstream. A 1986 flood dragged ice floes from the upper river, dredged Milltown Reservoir, and sent loosened sediment and toxins over the dam. A similar event in 1996 sent concentrations of toxic copper skyrocketing to 2,000 percent over state standards, wiping out more than half the trout in the Missoula reach.

In addition to killing fish outright, acid leached from mountains of mine tailings near Anaconda and Butte dissolved lead, cadmium, and copper. The heavy metals disrupted gill function and caused trout and

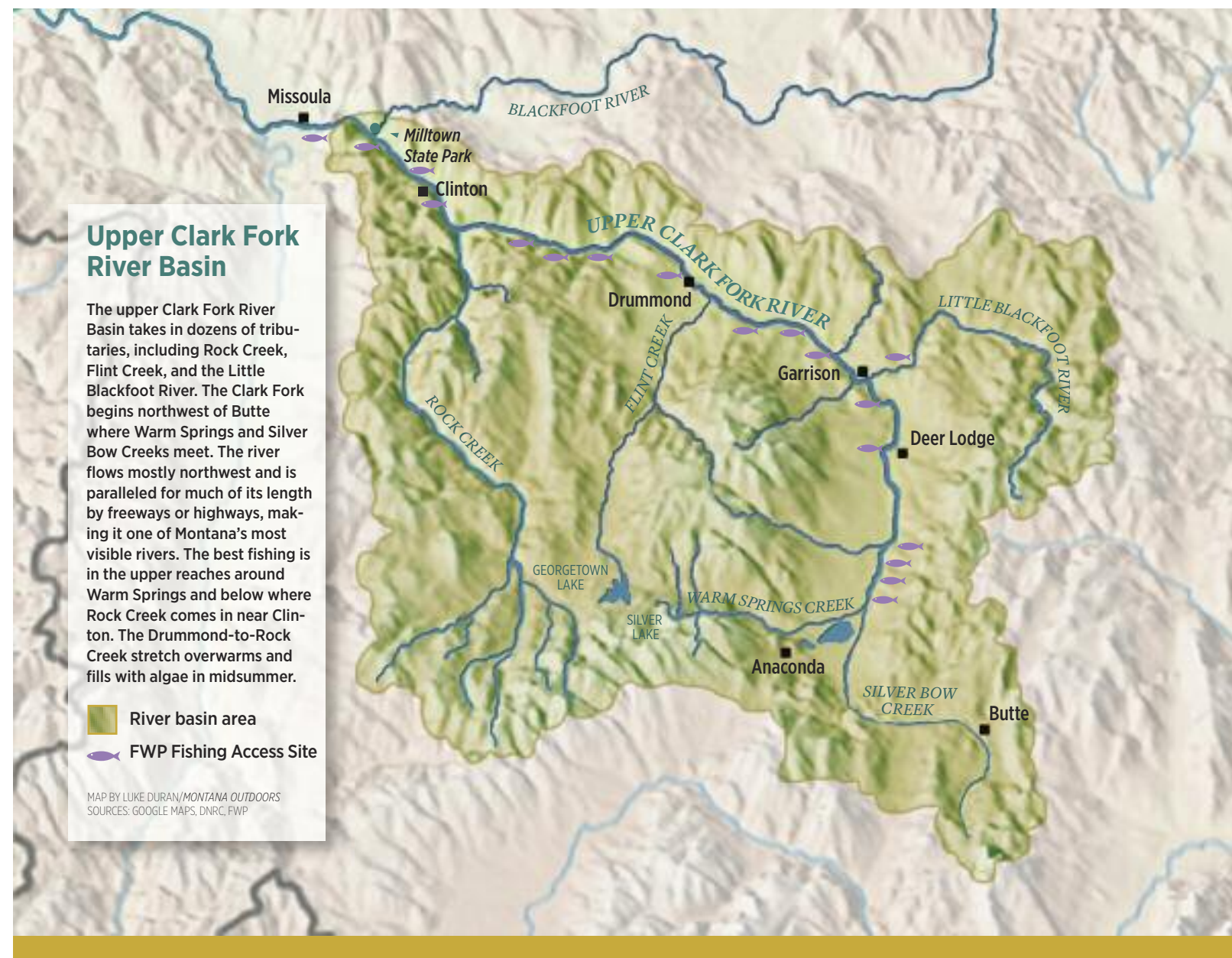
aquatic insects to suffocate. For decades, fish kills following heavy rains were common. The Clark Fork’s trout population plummeted to just a fraction of what the river previously supported.

The dam itself blocked migrating fish trying to swim up and down the Clark Fork and Blackfoot. FWP fisheries biologist David Schmetterling documented the problem in the late 1990s. He and colleagues showed that each year the dam blocked the upstream movement of roughly 200,000 fish, including westslope cutthroat trout and, most significant, fed-

erally threatened bull trout.

The bull trout plight put added pressure on the federal government and the dam’s owner at the time, Atlantic Richfield Company (ARCO), to dismantle Milltown Dam. By this time, scientists had already confirmed that arsenic leaching from the sediment below the reservoir into underground aquifers had contaminated water supplies of nearby residents. In 1992, the Clark Fork from Milltown upstream to Butte was designated as the country’s largest Environmental Protection Agency Superfund site.

Yet even after the Superfund designation,



CLOCKWISE FROM TOP LEFT: BUTTE-SILVER BOW PUBLIC LIBRARY; ARCHIVES & SPECIAL COLLECTIONS; MANSFIELD LIBRARY; U-MONTANA; CLARK FORK COALITION; JOHN LAMBING; MARK EISENBELL; MONTANA MEMORY PROJECT; TOM BAUER.

it took more than a decade of constant pressure from groups like Trout Unlimited and the Clark Fork Coalition—an alliance of citizens, businesses, and organizations that initiated an aggressive “Remove the Dam, Restore the River” public campaign—before cleanup began. All the toxic sediment behind the dam—roughly seven million cubic yards, or about 500,000 dump trucks full—was finally removed by the Environmental Protection Agency and the state starting in 2006 after the reservoir was drained. The dam itself came down in 2008-09.

Restoration money comes from the Montana Department of Justice’s Natural Resource Damage Program, which oversees the \$320 million the state received in a legal settlement from ARCO to compensate for lands and waters damaged by historic mining and smelting.

In the upper Clark Fork headwaters, the Montana Department of Environmental Quality and the federal Environmental Protection Agency coordinated the removal of another one million cubic yards of contami-

“
It’ll take a while
for the Clark Fork
to become what
it could be, but
I really think
it will happen in
my lifetime.”

nants from the banks and floodplain of Silver Bow Creek.

A “NEW” RIVER

The ecological disaster afflicting the upper Clark Fork had a silver lining: It created a fisheries restoration opportunity unlike any in the state’s history. “We had an opportunity to get a whole new river,” Saffel says. “That’s some-

thing you just don’t see in this business.”

The same with tributaries. Today Silver Bow produces fish like it hasn’t since the late 1800s, creating hope that the mainstem upper Clark Fork can experience a similar recovery. Biologists found westslope cutthroats in Silver Bow in 2007; the tiny population had survived over the decades in a remote tributary of the creek. Ironically, Silver Bow had for decades served as a “chemical fish barrier” that prevented upstream migration of non-native rainbows and brown trout from the Clark Fork. Though some rainbows made it past to hybridize with native fish, the genetic quality of the Silver Bow cutthroat population remained (and still remains) high. When Silver Bow’s toxic waters were cleaned, some of those cutthroat swam down and established a new population in Silver Bow. “Silver Bow Creek went from nothing to something,” Saffel says. “Recently, one of our wardens busted someone for poaching a whole stringer of cutthroat from Silver Bow. That really shows

how much that stream has recovered.”

Saffel says a newly constructed fish barrier will block rainbows from swimming up from the Clark Fork and mixing with the natives. Eventually, biologists and trout conservationists hope that cutthroats will swim downstream over the structure and repopulate the upper Clark Fork with native stock.

Meanwhile, fish are once again moving up and down both the Blackfoot and Clark Fork. When Schmetterling followed trout in the 1990s, he found that the fish, when transported around the dam, traveled up to 100 miles in the Clark Fork watershed. With the dam now gone, trout are finally free to migrate as nature intended. “A cutthroat might spend the winter down by St. Regis [near the Idaho border] and then go all the way up into the North Fork of the Blackfoot or Monture Creek to spawn,” Schmetterling says. “Now the whole watershed is available.”

Other species also have benefited from the barrier removal. Bull trout in the lower river can now reach historic habitat on the upper Clark Fork, and especially on higher quality spawning waters of the Blackfoot and its tributaries. Even bottom-feeding suckers, a critical component of a river ecosystem, are seeing a resurgence.

OPTIMISM AMID CHALLENGES

Despite positive signs, the upper Clark Fork still has a long way to go before anyone can call it recovered. So far, anglers have noticed

only minor changes to the fishery. “Anglers have been reporting a few more rainbows and cutthroats, especially between Drummond and Rock Creek, but the fishery is still almost entirely brown trout,” says Brad Liermann, FWP fisheries biologist in Clinton. He and his colleagues point to four main challenges: toxins still in the water, irrigation barriers that block fish movement, excess nutrients, and lack of abundant cold water.

On Silver Bow and for miles down the upper Clark Fork, bankside tailings that over the years washed down from floods continue to leach toxins into the water. Cleanup happens slowly, and there’s little that biologists and conservation groups can do to speed it up. Most fisheries restoration work in the upper Clark Fork focuses on removing smaller barriers to trout movement, such as irrigation dams, throughout the river system. (See “Restoring the tributaries,” page 28.)

Another challenge is excess nutrients—phosphorous and nitrogen—that create massive algae blooms every summer from Flint Creek downstream to Rock Creek. “We have our lowest fish numbers here, and we believe it may be tied to the high algae density,” Liermann says. “We’re hoping that more research will help us understand how the two are connected.” Students from the University of Montana and FWP biologists are working to find out where the nutrients originate—are they natural, human caused, or both?—and suggest ways to reduce the loads.



August caddis hatch on the Clark Fork near Galen.

Fishing the upper Clark Fork

By no means does the upper Clark Fork rank among Montana’s premier trout waters. But the river is definitely fishable and can produce some large trout. Fish numbers are relatively low, but so is competition, which results in decent catch rates.

The river is almost entirely a brown trout fishery upstream from Drummond, say FWP biologists. From Rock Creek to Missoula, increasing numbers of rainbows and westslope cutthroats have appeared since Milltown Dam was removed.

Starting at the Clark Fork’s uppermost reaches, Silver Bow Creek provides decent fishing for westslope cutthroat and brook trout, says KynsLee Scott, a guide for Blackfoot River Outfitters in Missoula. The challenge is access, because almost all of the stream runs through private land. “Find a bridge and fish up or down, staying in the channel,” she advises.

The first hot spot moving downstream is the water below the Warm Springs ponds. Especially popular in winter and early spring, it “fishes like a spring creek,” Scott says. Zebra midges, scuds, wire worms, and tiny mayfly nymphs all work well. The water here has excellent public access and a designated parking area.

In his book *Montana’s Best Fly Fishing*, author Ben Romans touts the Deer Lodge-to-Drummond stretch for its Skwala stonefly hatch in April. There’s also a decent caddis hatch in early May, he writes.

Between Drummond and Rock Creek, a mix of cattle yard runoff and other factors create algae blooms that massively depress fish populations. But below where the cold, clean waters of Rock Creek come in, trout numbers increase and insect hatches intensify. “Schwartz Creek to Turah is a popular float once the floating season winds down after June 30 on Rock Creek,” Romans writes. “I like this section [of the upper Clark Fork] because the braids, undercut banks, and overall character are similar to lower Rock Creek.”

—Ed.



A RIVER FREED Clockwise from top left: Looking north, Milltown Dam in 2005 before removal at the confluence of the Blackfoot (center of photo, below the bridge) and the Clark Fork; the dam spillway that blocked fish movement for more than a century; the Clark Fork flowing free after the dam was removed in 2008-09; following sediment removal, rechannelling, and native vegetation planting, Milltown State Park now sits where the reservoir once was.



CLOCKWISE FROM TOP: RYAN BRENNER/CKE; LARRY DEARS; LARRY DEARS; JEFF ERICKSON

PHOTOS: JOSH BERGAN



CUTTIE COMEBACK A fat westslope cutthroat trout recently caught on Silver Bow Creek.

Warm water is another issue. Bull trout need icy cold streams. Jason Lindstrom, FWP fisheries biologist in Anaconda, points out that the upper Clark Fork is in the southern part of the species' historic range. "So even a few degrees of warming can make or break bull trout in that marginal habitat," he says. "Climate change is not helping." The Montana Natural Resource Damage Program has allocated roughly \$20 million for an aquatic restoration plan aimed at finding more cold, clean water for the upper river. Unfortunately, Lindstrom says, "the challenge is that there aren't many sources for that kind of water. Water stored in Silver Lake [upper Warm Springs Creek watershed] offers the best hope for bringing more

cold, clean water into the upper Clark Fork."

Despite the challenges, FWP biologists and trout conservation advocates remain optimistic about the Clark Fork's future. "Removal of the dam was such a huge accomplishment," Saffel says. "Then you add all the contaminated soil removal at the dam site and along Silver Bow. It'll take a while for the Clark Fork to become what it could be, but I really think it will happen in my lifetime."

That's a nice notion to ponder. But during my afternoon on the Clark Fork, such daydreaming will have to wait. I've switched to stripping a streamer through the deep bends of the river, hoping I might change my luck.

I cast again and again, but nothing. Then, just as I'm about to call it a day, a fish hits. It catches me off guard, but for perhaps a minute I can feel the big fish, deep in the hole, thrashing. I picture something savage and strong. I barely have enough time to shout and lift the rod some more and it's gone.

In the aftermath of the adrenaline rush, I sit down and wonder if it was a big brown or a bull trout. All other thoughts have abandoned me. Now I'm just thinking about that trout, deep down there in its river. I never like losing a fish, especially a big one. But it gives me comfort to know that it, and many more like it, now have an undammed and increasingly healthier river to live in. 🐟

Restoring the tributaries

Trout Unlimited (TU), the Clark Fork Coalition, FWP biologists, and others are working with local ranchers to restore fish passage in the headwaters of the Little Blackfoot, an important tributary to the upper Clark Fork. Barriers such as culverts, irrigation diversions, and lack of water flow prevent trout from spawning, migrating, and gaining access to cold water refuges. Casey Hackathorn, who manages TU's Upper Clark Fork Restoration Program, says the partners are working with ranchers to modernize irrigation systems to eliminate impediments to fish movement while improving water use efficiency. "We want to overlay their needs with what trout need to have a win-win," Hackathorn says.

The City of Missoula and TU also plan to remove a lowhead dam on Rattlesnake Creek in 2019. Other streams scheduled for blockage removals include Racetrack Creek near Deer Lodge and Flint Creek near Drummond. "Our goal, which

we think is reasonable, is to get the Clark Fork fish population up from the current 150 fish per mile to 1,000 fish per mile from Butte to Milltown," says Hackathorn. "We're working on the tributaries to reconnect and restore the fish factories that supply the young fish for the Clark Fork."

The Clark Fork Coalition is focusing on restoring tributaries such as Dry Cottonwood Creek and Modesty Creek between Butte and Deer Lodge as part of its Eight Gr8 Trout Streams project. Will McDowell, the coalition's restoration director, says crews are reconnecting chronically dry creeks by restoring flow. This opens spawning pathways, lowers water temperatures, and improves water quality. "We're also working on improving riparian habitat damaged by waste from abandoned mines, sediment, and lack of vegetative cover along the banks," he says. ■

Left: This dam on Rattlesnake Creek near Missoula is slated for removal in 2019. Right: willow plantings at Modesty Creek, a tributary reconnected to the Clark Fork after 60 years.



TU and FWP crews monitor the Little Blackfoot River



CLOCKWISE FROM TOP: ROB ROBERTS; CLARK FORK COALITION; ROB ROBERTS

Milltown State Park

For decades, the site of Montana's newest state park, Milltown, was an underwater wasteland of toxic-laced sediment. Today the park sparkles with life, as hikers, mountain bikers, bird watchers, picnickers, anglers, history buffs, and others explore its 625 acres of floodplain, river, and forested bluffs.

The park was established at one of Montana's oldest and most historic rendezvous sites, where the Clark Fork and Blackfoot Rivers meet, just upstream from the old Milltown Dam site. Members of American Indian tribes like the Salish, Nez Perce, and Kootenai paused here as they traveled up and down the Blackfoot River on the famed "Road to the Buffalo," or while following the Clark Fork. The local Salish and Kalispel who came here to fish and trade called the site where the blue waters of the Blackfoot meet the greenish waters of the Clark Fork, *Naayc̓stm*, or "Place of Bull Trout."

Explorers like Meriwether Lewis passed through, too. Travel intensified after 1860, when the Mullan Road was built. It carried soldiers, travelers, and cargo between the Missouri River at Fort Benton and the Columbia River via the Little Blackfoot and Clark Fork Rivers. The route was eventually followed by the Northern Pacific Railroad.

In January 1908, when Milltown Dam was

finished, much of today's state park was flooded beneath a reservoir. Now, a decade after that dam's removal, the site has come full circle. Dovetailed with the dam removal and river restoration was a community-led redevelopment effort that crafted the conceptual plan for the new state park. The 2018 grand opening of the park's Confluence Area was a "culmination of a community vision that began 15 years earlier," says Michael Kustudia, park manager.

The park's main entrance is at the Milltown



For more information on the park, including a trail map and directions, visit the park's website at stateparks.mt.gov/milltown.

State Park Overlook, off Deer Creek Road on the river's west side. There visitors can view the valley below and fully appreciate the river's rebirth. The park provides opportunities to learn about the area's geological and human history. Visitors can also picnic, fish, watch birds and other wildlife, or carry a canoe or kayak to the water and float to Missoula. Nearly three miles of trails run between the bluff and the restored floodplain, planted with native vegetation.

Kustudia attributes the park's success to a partnership among FWP, the Milltown Superfund Redevelopment Working Group, the Montana Natural Resource Damage Program, the U.S. Department of Housing and Urban Development, the U.S. Environmental Protection Agency, Humanities Montana, Missoula County, and the Montana State Parks Foundation.

Other partners include the Missoula County Water Quality District, Clark Fork Coalition, Clark Fork River Technical Assistance Committee, Friends of Two Rivers, Five Valleys Land Trust, the Idaho-Montana Chapter of American Society of Landscape Architects, the Confederated Salish & Kootenai Tribes, Séliš-Q'ispé Culture Committee, and the Rivers, Trails & Conservation Assistance Program of the National Park Service. ■