Currents

CLARK FORK COALITION | **SPRING 2017**

From Before to After:

On the path to a healthier watershed

CLARK FORK COALITION

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Dear Friend of the river,

Too many of our days can rush by in a blur of news flashes, project to-do lists, and various obligations. We can become doubly susceptible to bouncing from task to ask with a "git-r-done" mindset once Daylight Saving Time hits, with more hours of sunshine and a myriad of options for outdoor adventure.

In the sprint from point to point, however, we run the risk of missing moments of awe and wonder that occur quietly and with astonishing regularity, right on the creeks and streams that make up our watershed.

A curl of steam rising off the Clark Fork.
A full moon's reflection on the water.
Sparkling ice cakes floating downstream.

And that's only a sampling of what's actually visible when we awaken to the remarkability of the rivers that surround us.

What's going on beneath our feet and mostly out of view in a river system like the Clark Fork is just as extraordinary for its life-giving activity: the cleaning and filtering of groundwater, the releasing and carrying off of nutrients, the nourishing of aquatic life and plants, and the providing of habitat and shelter, sustenance and food, the simple pulse of life.

Seen or unseen, there's awe and wonder in all of these moving parts.

Which is why in this issue of *Currents*, we are highlighting some of our quieter efforts to hold those parts together, fix those that are broken, and build a network of stewards who will care for the river—its grand scenes, quiet inspirations, and invisible parts—for the long haul.

As a new field season arrives, we're reminded that the river is dynamic and its story is one of renewal. Thank you to our members, business sponsors, and volunteers for renewing your support for the cause and for helping us push forward to ensure the best possible future for our river and its people.

For the river,

Karen Knudsen, Executive Director

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Back From the Brink

Rewatering Streams in Need

Fish need cold, clean water. It's as simple as that. You've heard it before, but it bears repeating that climate change, low snowpack, higher demand, and degraded stream conditions have coalesced to cause significantly reduced flows in the Clark Fork and its tributaries. Those low flows mean less dissolved oxygen, higher water temperatures, and more algae—none of which are good for fish and aquatic life. Year after year our field staff document new record-low flows, and with them, more dry creeks, more high temps, and more fish kills.

The summer of 2016 also included a dramatic and painful illustration of some of the secondary consequences of low flows. In addition to costly fishing restrictions on most mainstem rivers in western Montana, more than 180 miles of the Yellowstone River were closed to all recreation during peak season after an outbreak of Proliferative Kidney Disease killed tens of thousands of native whitefish. The disease kills up to 90% of fish that become infected with it, and is caused by a microscopic parasite that flourishes in warm water with high nutrient levels.

A big reason for that outbreak was the one-two punch of high temps and low flows on the Yellowstone River again last year. The impacts were immediate and staggering: tens of thousands of dead whitefish; hundreds of thousands in lost revenue for Montana's outdoor industry (guides, hotels, guest ranches, restaurants, gift shops); and weeks of lost opportunities to recreate on one of Montana's most popular rivers.

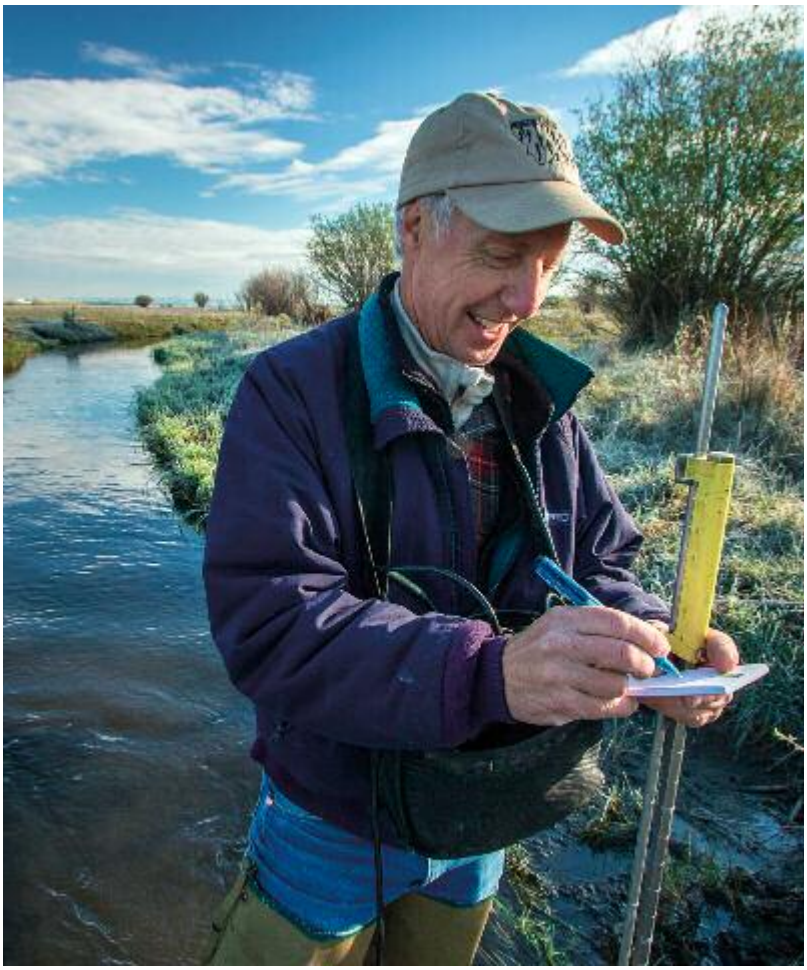
In addition to their ecological, economic and recreation impacts, low flows also cut fish off from upstream cold water refugia that could help them survive. A recent U.S. Forest Service study *(D.J. Isaak, et al, April 2016)* revealed that high mountain streams are not warming as quickly as climate scientists had feared, and could provide refuge to native fish for a long time to come. That's outstanding news, but fish can only benefit from those cool upper reaches if the lower parts of the stream remain wet and connected.

Creeks run dry for myriad reasons and fixes can be complex. But there's a lot we can do to help. Our field monitoring confirms that in places where flow conservation and restoration projects have been implemented, tributaries continue to flow—even during record-setting dry summers.

Creeks run dry for myriad reasons and fixes can be complex. But there's a lot we can do to help.

Currently the Coalition is focusing on the Bitterroot, Ninemile, and Upper Clark Fork valleys, with additional projects in the Blackfoot. Thanks to member support, we have been able to help dozens of struggling waterways in these drainages by applying highly effective flow restoration tools, including:

- Win?win water use agreements: Ranchers, landowners, and others can



Clockwise from opposite page: Ron Porter of Ward Irrigation District and Jed Whiteley, CFC project manager, at Lost Horse Creek, which after 80 years once again reaches the Bitterroot year-round, thanks to a cooperative irrigation upgrade project. Project manager Andy Fisher works with a rancher in the Deer Lodge Valley; CFC stream restoration director Will McDowell monitors Lost Creek; native cutthroat in a healthy trout stream. (Credits: Jeff Gersch, Jeff Gersch, Paul Queneau, Jimmy White)

dramatically improve flow by agreeing to reduce how much water they use. We reach out to and work with water users in key areas on leases and other agreements that compensate them for the water they leave instream. Together, these agreements mean billions of gallons of flow returned to native trout streams each year.

- Voluntary reductions: Sometimes, all you have to do is ask. Many water users willingly reduce usage when provided with timely information on creek conditions and tips on how they can help. We work to get the word out in partnership with local groups and community leaders.
- Irrigation upgrades: Piping ditches, upgrading infrastructure, and improving irrigation efficiency can all deliver big gains for instream flow. We work closely with ranchers and others to craft projects that meet both agricultural and aquatic needs. These upgrades not only remove fish passage barriers, reduce fish kills, and increase flow, they also reduce irrigation maintenance and operation costs.
- Reconnected channels: In the headwaters, Coalition supporters helped reconnect two creeks to the Clark Fork in 2015 that had spent the last 100 years captured in irrigation ditches. Today, fish in numbers too high to count use these creeks for refuge and spawning; they provide millions of gallons of cool water for the mainstem river each year; and re-routed diversions ensure irrigators still have the water they need.
- Water?smart policies: Ensuring river-smart principles and water conservation are built into all new development proposals are a few ways that good policies can keep our creeks flowing. We work with agencies, municipalities, and decision-makers to ensure policies and practices help, not harm, instream flow.
- Timely, accurate data: It's hard to help a creek if you don't know it's in trouble. We track conditions at 40 locations around the basin through weekly onsite visits as well as via remote telemetry monitoring. The information helps guide our restoration efforts and is also provided to researchers, agencies, water users, and the public.

Low flows aren't going away any time soon. In fact, they are among the greatest threats currently facing the watershed. And the problem is likely to intensify in the decades ahead. The reason that the Clark Fork is finally healing from 150 years of hard use and pollution is because people stood up for the river. It is critically important that we step up again to help the river in the face of one of its greatest new challenges.

Coalition supporters have helped put nearly 35 billion gallons of water back into native trout streams over the last ten years. To help keep our creeks flowing in the years to come, please donate and get involved today at clarkfork.org

Double Trouble in Trout Country

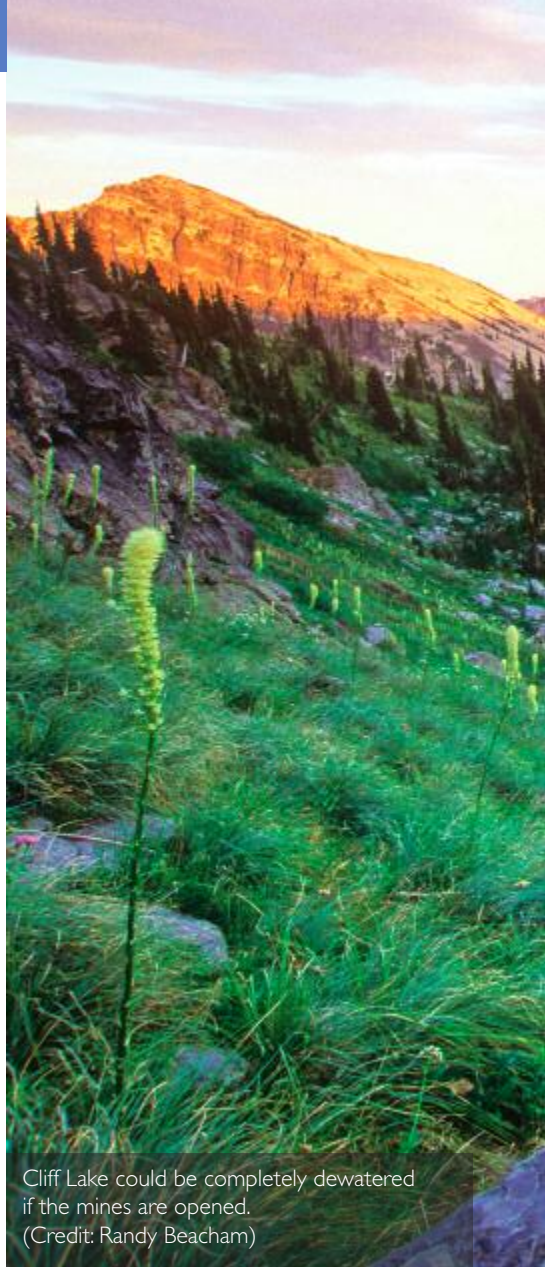
The Cabinet Mountain Wilderness in northwestern Montana is a rare gem of deep cedar forest ascending along clear, rushing streams to alpine meadows, sparkling lakes, and snow-capped peaks. This small sliver of wild land comprises only 4% of the Kootenai National Forest, yet it provides cold, clean water for threatened bull trout, and refuge for one of the few remaining grizzly bear populations in the lower 48.

The Cabinets hold other treasures too. In fact, 1,000 feet beneath the wilderness waters of Cliff Lake lies one of the largest copper/silver deposits in the world. Since the 1980s, mining companies have had their sights on these riches. In fact, two proposed mines on the east and west sides of the deposit are now in advanced stages of permitting: the Montanore Mine, 18 miles south of Libby, and the Rock Creek mine near Noxon. Citizen action, court rulings, volatile metals markets, and environmental problems have kept these mines on hold. But Hecla Mining, a well-heeled company based in Coeur d'Alene, Idaho, purchased the mines during the last two years, with the intention of bringing both of them on-line.

The potential for lasting ecological harm from one of these mines, let alone two, is worrisome. To reach the deposit, both Montanore and Rock Creek would tunnel under the wilderness for more than 3 miles. In addition to transforming a remote landscape into a large-scale industrial operation, replete with massive amounts of waste, the tunneling and mining will tap deep, water-bearing fractures in the rock, potentially draining water from wilderness streams and severely reducing flows.

Just how bad would the dewatering be? The environmental analysis for the Montanore Mine admits significant uncertainty in the analysis, but as the best science currently available, it is very concerning that itpredicts partial to complete dewatering of the upper reaches of East Fork Rock Creek and East Fork Bull River. However, the problem with this type of dewatering is that it's not fixable. There is no way to plug the leaks. As a result, the damage would last forever.

What does this level of dewatering mean for native trout? Unfortunately, the analysis has been shoddy to-date. And because both the East Fork Rock Creek and East Fork Bull River are vital strongholds for threatened bull trout, we are urging regulators to take a hard look at how local and core-area populations in the project footprint would respond – and not only to dewatering, but to the increased temperature, sediment, and water pollution that 30 years of two mining projects would bring.



Cliff Lake could be completely dewatered if the mines are opened. (Credit: Randy Beacham)

Cabinet Mountain Wilderness

So where are we in the process? Because the mines will impact public lands and water resources, Hecla must secure permits from several government agencies. In early 2016, the U.S. Forest Service gave the company the green light to construct and operate Montanore Mine, an action that the Coalition and its conservation allies, Earthworks and Save Our Cabinets, have challenged, because it would violate several federal environmental laws. The State of Montana, on the other hand, authorized Hecla to construct only an evaluation adit – state regulators were rightly concerned about stream dewatering and determined it would violate state water quality laws. Oral argument on the case took place in federal district court the end of March, and we expect a decision in mid-April.

On the Rock Creek side, we teamed up

with our partners Earthworks and Rock Creek Alliance and submitted extensive comments on a Draft Supplemental Environmental Impact Statement almost a year ago. (Thank you to Coalition supporters and concerned citizens for speaking up for wilderness waterways and wildlife in your own comments on the project!) We've also objected to Hecla's application for a water right for the mine, because we believe the water is not legally or physically available. We expect a Draft Final EIS and possibly a Record of Decision on Rock Creek in 2017.

Following the November elections, we are also keeping close tabs on potential weakening or dismantling of state and federal environmental laws that currently protect clean water resources in the Cabinets. Stay tuned to our website, e-newsletter, and Facebook posts in the coming year for the latest information and how you can get involved. For more information and the latest news visit: www.clarkfork.org

Exempt Wells Bill Re-opens Controversial Loophole

HB 339 would once again lead to reckless water grab

This op-ed is by Coalition partners and three co-plaintiffs in a successful legal challenge (Clark Fork Coalition v. Tubbs, 216 MT 229). It appeared recently in newspapers throughout Montana.

Water is a scarce resource in our semi-arid state. The last few summers of drought conditions have highlighted that fact, and raised concerns for those of us growing crops and raising livestock in Montana.

Why then is our state legislature so eager to create a law that worsens drought's impacts and may burden senior water right holders? House Bill 339 (HB 339) is moving quickly through the state capitol and has us worried. It revives the "exempt wells loophole" recently declared invalid by the Montana Supreme Court, and gives subdividers a free pass to appropriate water without a water right. More troubling, it upends Montana's "first in time, first in right" doctrine of prior appropriation, which protects existing water right holders and is the bedrock of our agricultural economy.

Our beef isn't with the concept of exempting small, individual wells from permit requirements. It's common sense to do so to provide groundwater for rural homes or stock water on ranches. In fact, it's been allowed in Montana since 1973, in recognition of the fact that a large portion of our state has dispersed development with low-population and slow growth rates, and a small personal well poses no threat to water supplies.

In 1987, forward-thinking legislators gave the law sideboards. Wells were only exempt from permits if they pumped at a rate of less than 35 gallons per minute and no more than 10 acre feet per year. Importantly, projects with multiple wells drawing from the same aquifer had to get a permit.

But things went off the rails in 1993 when the Dept. of Natural Resources and Conservation (DNRC) created a rule specifying that projects with multiple wells drawing from the same water source (i.e., "combined appropriation") only had to get a permit if those wells were piped together. This rule swung open the door to unregulated construction of large subdivisions; each home built with its own exempt well, and all drawing from the same groundwater source. No water right permit required. No consideration of drawdowns on ground or nearby streams. No discussion of impacts to other permitted senior water users.

Since the implementation of that development-friendly rule, 75% of new homes built in Montana have been permit exempt and over 72,000 exempt wells have been drilled. Most of these wells were drilled in basins that have been closed by the state to new water appropriations—places like Ravalli, Gallatin and Madison counties where water supplies are limited and big subdivisions, some with hundreds of homes, are increasingly common.

The Montana Supreme Court closed the loophole in 2016 after years of litigation, because it flies in the face of the prior appropriation doctrine, which governs the distribution of water in this state. Unfortunately, HB 339 ignores this recent ruling, and codifies language that the Court rejected. In other words, HB 339 cooks the poison right into the bill and leaves senior water right holders at risk.

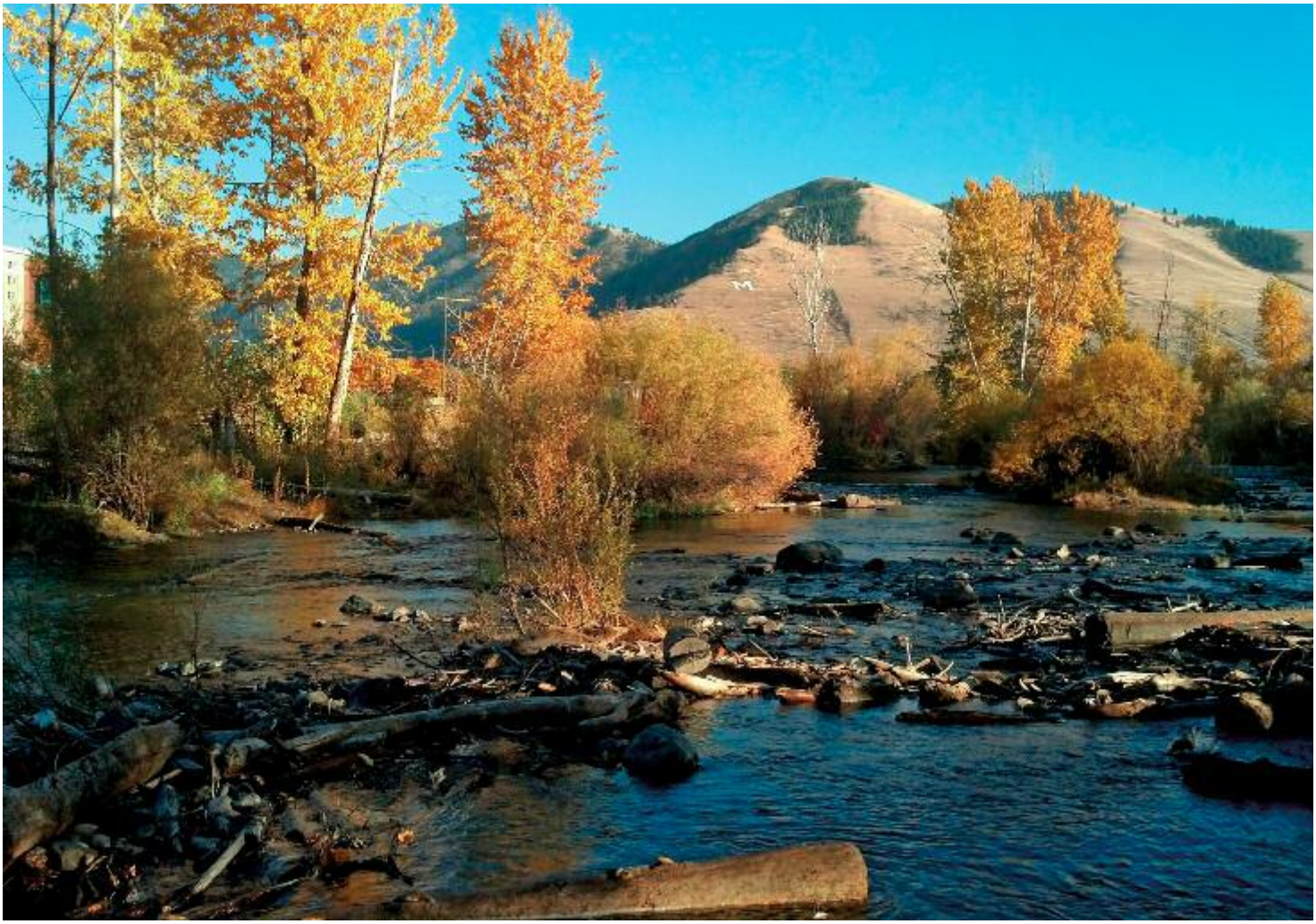
Possibly the worst part of this bill is that senior water rights holders have no recourse if their wells or streams begin drying up. You can't object to, or "make call" on, an exempt well. This bill codifies special privilege for subdivision developers. It lets developers cut in line before other water users. That's just not good policy.

HB 339 does attempt to "compromise" and restrict the use of exempt wells by requiring spacing between wells. The proposed spacing would allow up to 64 new exempt wells per square mile in basins that are closed to new appropriations, each pumping up to 10 acre feet per year. That's 640 acre feet of water—enough to irrigate over 400 acres. In basins that are not closed, the allowable amount of unregulated water withdrawal doubles. Farmers that irrigate 400 acres of land need a valid water right. Why should subdivisions be given a free pass?

In the bigger picture, HB 339 is reckless. The so-called "compromise" in HB 339 doesn't fix anything. It simply provides a free pass for subdivisions to lock up large quantities of water, no questions asked, and gives the rest of us no recourse. We can do better. Let's use hydrologic science, common sense, and respect for senior water rights to ensure the best possible future for our water resources and the people, fish, and wildlife that depend on them.

Water is precious. We need to provide this vital resource to Montanans for many generations to come. Please contact your state legislators and Gov. Bullock ask them to stop this irresponsible bill.

—Absarokee area ranchers Polly Rex, Katrin Chandler, and Betty Lannen (co-plaintiffs in Clark Fork Coalition v. ; Paul Roos, Blackfoot Valley irrigator and landowner; and Watson Irrigation Specialists, LLC



Mountain Water: The Long Path to Public Ownership

Keeping out-of-state corporate hands off our local water utility.

Does it matter if a city owns its own drinking water utility? At the Coalition, we strongly believe it does. Local control helps ensure accountability of the management of the ground and surface water that is the lifeblood of any community. In the case of Missoula's Mountain Water Company, that includes critical water rights on Rattlesnake Creek, the Missoula aquifer, and eight wilderness lakes.

For the last 100 years, Missoula's Mountain Water Company has been in private hands. From 1979 to 2011 it was a subsidiary of California-based Park Water and was regulated by the Public Service Commission (PSC) as a private water utility.

In 2010 Park Water announced its intent to transfer ownership to the Carlyle Group, a multi-billion dollar global equity firm. At that time the Coalition raised concerns that Missoula's water company would enter a revolving door of corporate ownership, leaving the community without control over its own drinking water. Our concerns were confirmed in 2014 when Carlyle put the company up for sale again. The City of Missoula then took steps to use eminent domain to acquire Mountain Water.

In August the Montana Supreme Court upheld an earlier District Court decision that said the city has a right to acquire the utility for fair market value. That value was set at $88.6 million by three independent water commissioners during a separate valuation trial in November 2015. The city is now working to transition the water company into public ownership.

It's been a long road, but we are pleased that Missoulians will soon have more say in the protection and management of its precious drinking water resources. Look for updates via email and social media as we continue to track the transition of the utility into public hands. For more information visit: `http://tinyurl.com/MountainWater`

CFC education coordinator, Lily Haines, demonstrates the Augmented Reality Sandbox.

Thinking Big in the Bitterroots

How do you wrap your head around a river system that drains nearly two million acres from two unique mountain ranges, flows more than 80 miles, and is made up of more than 50 watersheds? And how do you begin to understand or address the issues facing its nearly 2,500 miles of streams?

That challenge has confronted the Coalition and others offering watershed education programs in the Bitterroot for some time. But we are now much closer to overcoming it, thanks to new partnerships and some cool new tools.

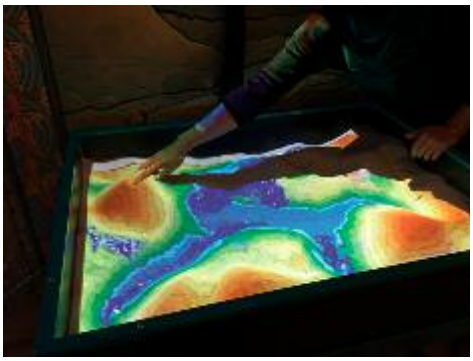
The Coalition recently teamed up with the University of Montana's spectrUM Discovery Area to create a new high-tech traveling exhibit and Bitterroot-specific curriculum that will reach students in every community in the Bitterroot.

At its core: an "Augmented Reality Sandbox" that allows young learners to model their local watershed in sand and see in real-time how virtual rain, streams, lakes, and other features interact. As the students manipulate the sandbox terrain, the exhibit's overhead camera projects images on the landscape, providing an immediate illustration of how water responds to dynamic conditions on the ground.

It's a highly engaging and hands-on way to demonstrate the impacts of low flows, stream sedimentation, loss of riparian vegetation, and other threats to streams and fisheries. And by collaborating with spectrUM and local groups, such as Bitter Root Water Forum, we can ensure this fun, experiential learning tool reaches students and families throughout the Bitterroot Valley.

The accompanying CFC-developed curriculum also includes place-based activities and service-learning opportunities that will deepen students' understanding of the science behind their local watershed and show them how they can pursue careers in its stewardship and care. It's a step closer to ensuring that the health and vitality of the vast and complex Bitterroot River system will be in good hands for generations to come.

Many thanks to the Mountaineers Foundation and Nick and Mary Babson for their support of this program



A Fish-Eye View of Restoration

After the stream restoration, flow enhancement, and sediment reduction projects are done, how do you know the fish got the memo? When flows decrease and water temperatures spike, how do fish respond? Which fish species are present in Upper Clark Fork streams and what's the ratio of young to old? Is the balance changing between natives and non-natives?

These are just a few of the questions we've grappled with for years, particularly in the Upper Clark Fork, where large-scale cleanup is improving riparian conditions by the day and conservation projects are making big improvements in key tributaries. But because only state wildlife agencies can handle fish to compile species counts, we have not been able to directly measure results. And those agencies often don't have the resources to collect data annually, or to sample every creek we're interested in.

Thanks to donors to the *Eight Gr8 Trout Stream Campaign* (see sidebar), the data-gap problem was solved this summer, allowing us to initiate a snorkel monitoring program by partnering with Dr. Lisa Eby of the University of Montana's College of Forestry and Conservation. Dr. Eby not only taught us how to carry out snorkel surveys, but also arranged for her graduate student, Katie Jacquet, to spend the summer surveying our top-priority creeks.

What we learned—and saw—was beyond remarkable. A lush, beautiful underwater world with everything from multitudes of redside shiners to 18-inch brown trout resting in the shadows. Sometimes in only inches of water. Fish using the cooler waters of reconnected spring creeks in numbers too great to count. Healthy numbers of fish in places that were recently restored, contrasting sharply with still-impaired areas just downstream that were devoid of aquatic life.

We also saw firsthand how lingering obstacles impact fish movement. In one important native trout stronghold, westslope cutthroat circled in a pool below an impassable culvert, blocked from upstream spawning grounds. That culvert is on the short list for removal. Now we have tangible new evidence—including photos and video—of why that work is a priority.

We've hung up the snorkel suits for now, but we can't wait to jump back in the stream this field season. In 2017 we will survey Dry Cottonwood, Modesty, Lost, Cottonwood, and Baggs creeks, and will also develop a baseline monitoring protocol. Thanks again to our *Eight Gr8 Campaign* donors for making this work possible!

Clockwise from top left: CFC restoration specialist, Alex Leone, monitors a creek in the Upper Clark Fork. Bottom: Redside Shiners in abundance in Lost Creek.

EIGHT GREAT GR8 TROUT STREAMS CAMPAIGN

The Eight Gr8 Trout Stream Campaign is a multi-year strategic effort to restore the Upper Clark Fork trout fishery through targeted stream restoration on eight high-priority streams that hold conservation populations of westslope cutthroat and bull trout. With the right help, these creeks can aid in repopulating one of Montana's greatest trout fisheries.

Your support not only helps make future snorkel surveys possible, but will also reconnect and re-water key streams, remove obstacles to fish passage, and improve riparian habitat and water quality for native fish. Best of all, donations are matched 2 to 1 by Orvis and other funders, including the Engelhard Foundation. To contribute or learn more, visit: **clarkfork.org/get-involved/donate/**

Still raw, but healing: the Clark Fork River near our ranch is officially on the mend

Transformation

Wrapping up Superfund Cleanup on Dry Cottonwood Creek Ranch

After two years of clanking cleanup construction, the 125 acres of river bottom on our Deer Lodge Valley ranch is quiet once again. Roughly 4-1/2 miles of river meanders through a floodplain that is just beginning to show greening signs of life—a floodplain that no longer contains over 530,000 cubic yards of toxic, metals-laced sediment.

This is the moment we've been waiting for since 2005 when the Coalition and its partners purchased Dry Cottonwood Creek Ranch (DCCR). The property sits in what was one of the most contaminated areas of the largest Superfund site in the West—polluted by mine tailings that washed down from Butte in the catastrophic flood of 1908. It is also the most upstream private property within the cleanup zone. That was an important consideration driving our purchase of DCCR, because most of the contamination is on private ranchlands. We knew that if Superfund cleanup didn't work for ranchers, it wouldn't work period. We wanted to be the "guinea pig" so that we could figure out how such an intensive cleanup effort could coexist with working cattle operations.

Over the last 12 years our goals have been to: 1) ensure a top-notch cleanup of the river and floodplain, while also pursuing conservation, water management, and riparian restoration projects that enhance tributaries flowing through our property, and 2) figure out how to make the cleanup work for landowners along the river.

Now that the cleanup is done, what have we learned? First, we learned how to work with the Montana Department of Environmental Quality (DEQ manages the cleanup) to offset impacts to the ranch using measures such as compensation for lost hay and grazing, and off-site water for cattle.

Second, as our ranch manager, Maggie Schmidt, says, "We definitely learned that the process is not without its challenges, such as working around construction fencing and haul roads when managing the herd."

We're eager to share those lessons with other landowners. Maggie and other Coalition staff have hosted dozens of tours and meetings with neighbors to make the process as transparent as possible and to help them do everything they can to ensure a smooth cleanup process before they ink their contracts with DEQ. On the flip side, DEQ has also learned from us about what does and doesn't work on a ranch, which we hope will benefit other landowners down the road.

What happens next? Now we monitor the progress of the new riparian vegetation and grasses on the floodplain as it heals. We've learned from large-scale projects at Silver Bow Creek, the Jocko River, and Milltown that when contamination is removed, the floodplain is contoured just right, and vegetation planted carefully, the river becomes lush and healthy again in just a couple of years. That is our hope here, and we're encouraged by the progress so far, such as seeing hundreds of wa-

Is all this effort going to make a difference for the river, and the people, fish, and wildlife the Clark Fork supports? The science suggests that it will.

terfowl and other wildlife using the new wetlands created during the cleanup process.

Is all this effort going to make a difference for the river, and the people, fish, and wildlife the Clark Fork supports? The science suggests that it will. After all, copper is extremely bad for fish, and arsenic is poisonous to people. Intuitively, we know that removing the source and eliminating the risk of contamination is the best way to bring about healing and recovery.

We now have data and know from other sites that the remediate-and-restore "two-step" approach works. According to a recent U.S. Geological Survey study, total copper, arsenic, and suspended sediment levels decreased from 1996 to 2015 in the Clark Fork watershed from lower Silver Bow Creek down to the Clark Fork River above Missoula (below the former Milltown Dam). This study confirms that capping exposed mine dumps in Butte and Anaconda, cleaning up 26 miles of Silver Bow Creek, removing the reservoir of toxic sediments behind Milltown Dam, and beginning the cleanup along 45 miles of the mainstem of the Clark Fork is making the river cleaner.

While these decreases are excellent news, the report also confirms that there's more work to do: the section of the upper river from Galen to Deer Lodge contributes a disproportionate amount of copper and sediment to the river, reaching as far downstream as Missoula. In fact, that 10-mile reach of river accounted for 41% of the total copper in the river in the Clark Fork above Missoula from 2011 to 2015. Furthermore, total copper increases by a factor of four on that reach, and sediment increases by a factor of five.

We are confident that removing wastes from the rest of the river's floodplain—the cleanup we've been working for and continue to track—will translate into further decreases in metals over time. And we view the work on our ranch as just the beginning of a multi-year, multi-ranch, multi-million-dollar cleanup of the entire Upper Clark Fork watershed.

In parallel, we are also now addressing mercury contamination in the Clark Fork, which primarily originates from abandoned mines in the Flint Creek drainage. And because cleanup alone cannot restore the fishery, we are aiding overall recovery by rehabilitating, restoring, and re-watering eight high-priority tributaries in the Upper Clark Fork. These streams support conservation populations of native trout that, if given the right help, can help repopulate the mainstem river *(see page 11)*. This integrated watershed-wide strategy will ultimately heal the river, make ranchlands more productive, restore fish and wildlife habitat, and benefit the many people who depend upon the Clark Fork.

It took decades of hard work by advocates of the river to make cleanup happen. Today we're seeing tangible benefits from that unwavering commitment to a clean and healthy Clark Fork. Thank you to everyone who made it possible! There's much more to do, and we're grateful to have your help along the way.

Blending large-scale cleanup and agricultural operations can be challenging. We're sharing lessons learned with our ranching neighbors.

Building a Healthier Lolo Creek

Decommissioning old sediment-producing logging roads along the East Fork of Lolo Creek. Bottom right: blowout of under-sized culvert shows the risks of leaving poor stream crossings in place.

1. GOODBYE ROADS

Take a birds-eye view of the East Fork of Lolo Creek and you'll first notice a distinct checkerboard pattern: squares of dark green trees interspersed with lighter, clear-cut squares where every tree has been removed. Zoom closer and an astounding network of logging roads emerges, curving and cutting in every direction like giant worms across the land. It's a disturbing image from above. At stream-level, even more so.

The problem—besides the high road density itself—is that the area sits atop the Idaho Batholith, which is characterized by granite soils prone to excessive erosion. Cut a road into this soil, add rain and snow, and those crumbly, granitic soils flow directly into the creek, especially where intensive logging has occurred. Multiply the problem by thousands of miles of roads and toss in hundreds of failing culverts that increase sediment issues and block fish passage, and you can see the problem for native cutthroat and bull trout. It's not great for native whitefish, brown, brook, or rainbow trout either.

High sediment loads don't just degrade water quality. They also reduce spawning success by filling in the cobble in the stream, preventing the upwelling of cold water needed to oxygenate fish eggs. Excessive sediment can also negatively affect macroinvertebrate numbers. And fewer bugs mean fewer trout.

In 2009 the Lolo National Forest (LNF) acquired more than 32 sections of previously private timber lands in Upper Lolo Creek through the Montana Legacy Project and has since implemented an ambitious road decommissioning project. To date, LNF has removed 65 miles of roads and 37 culverts in the Upper Lolo drainage.

In late 2015 the Coalition began a partnership with LNF to improve even more habitat in this hard-hit area. The result: An additional 13 miles of old logging roads and 19 culverts removed in 2016 alone—with more planned in the coming years.

Cutthroat and bull trout—which are especially sensitive to sediment—are already experiencing cleaner water and better habitat. The project also averted culvert failure (one culvert blowout can dump hundreds of tons of sediment directly into a creek), and opened up 7-10 miles of spawning habitat and cool water refuge. Such improvements are critical to the survival of native trout as Montana faces longer, hotter summers and stream flows are reduced by greater demand. This work provided out-of-stream benefits too, putting some $230,000 into the local economy via contracted labor and supplies.

Projects like this can't happen without great partners. Many thanks to Lolo National Forest, Montana Fish Wildlife and Parks, Montana Department of Environmental Quality, and the Westslope Chapter of Trout Unlimited. The project also benefitted greatly from the oversight of InRoads Consulting and the expertise of Victor-based Specialty Excavating. Coalition supporters also helped make this project a reality. Thanks to all of you, that birds-eye view is looking better every day.

Left: Sediment in creek from fire-damaged banks. Above and below: Some 100 volunteers and students worked together to rehabilitate, revegetate, and monitor this fire-damaged section of Lolo Creek.

2. HELLO, RESTORATION

In August 2013 a firestorm erupted just west of Lolo, Montana, consuming forests, homes, and fields and leaving deep scars along Lolo Creek. The fire burned so hot in some areas that it killed riparian vegetation to its roots. Without that protective network of roots holding the banks together, sediment began washing directly into the creek, degrading water quality and habitat for sensitive native species. It was clear that without some help, parts of the creek would be slow to recover.

The local community was more than up to the task. In March we teamed up with Lolo Watershed group, Lolo National Forest, and landowners to address the severe sediment loading in an especially hard hit one-mile section of the creek. A hardy group of volunteers spent a chilly morning collecting 800 willow cuttings to be used to rehabilitate fire-scorched streambanks. Then, over two additional days, students from Florence High School and Woodman School planted ponderosa, alder, dogwood, and willow in the burned areas. The next day, members of the Coalition's Volunteer River Corps finished the job, staking willows and dogwoods along the banks. Over the summer, volunteers watered the new plants, and last fall, Florence High School students monitored the recovery progress. In all, 72 volunteers planted 1,000 trees and stabilized 1,080 feet of streambank, which will protect water quality, decrease sedimentation, and increase biodiversity in this still-recovering area.

As a bonus, the project provided a fun outdoor science classroom for students from kindergarten to high school to learn about real-world restoration work. It also brought adult volunteers together from several different organizations to help a fire-damaged ecosystem. The fire-damaged area will be recovering for years to come, but thanks to these dedicated stewards, Lolo Creek is well on its way.

Smurfit-Stone cleanup: Moving forward—slowly.

In December of 2009 the Smurfit-Stone pulp and paper mill west of Missoula closed its doors for good. Other than scrapping old buildings, not much has happened at the site since.

But that's not because there's nothing to do. In 2012, scientists with the Environmental Protection Agency (EPA) discovered that the 1,700 acres of sludge and wastewater ponds on the site (which sit over a formerly active river channel and are separated from the Clark Fork by only a narrow, bull-dozed berm) are contaminated with cancer-causing chemicals. Fisheries biologists then found mercury, dioxins, furans, PCBs, and selenium in the tissue of fish collected downstream of the site and issued do-not-eat advisories covering 105 miles of river below the property. That advisory still stands.

After several years of negotiation, in late 2015 EPA announced it had reached an agreement with current and past owners of the shuttered mill site to voluntarily begin investigating the extent of contamination. While the Coalition initially favored Superfund designation, we welcomed this development, as, in theory, a voluntary approach can be just as good for the river and community health. It still requires EPA oversight and public involvement and can be a timelier, less contentious path to cleanup. It also does not preclude Superfund listing down the road.

So we and our partners* were cautiously optimistic last November. One year later, we're seeing progress, although it's never as fast as we'd like. In October 2016 EPA announced that the agricultural lands on the site—which everyone assumed were clean—are indeed clean. That's great news, but what about the areas that we know are contaminated, like the sludge ponds and landfills? The public deserves to know.

The lack of progress has frustrated Missoula County Commissioners as well, who told EPA they are "disappointed with the progress at the site and the lack of transparency." Those frustrations extend to neighboring residents of Frenchtown and the West Valley Community Council, who are anxious to see cleanup and redevelopment, not to mention the hundreds of thousands of dollars in delinquent taxes owed to them by site owner, M2Green.

Complex cleanups can be agonizingly slow. It was 2015 when EPA first said that

M2Green, along with past owners, International Paper and WestRock, would begin sampling soils, stream sediment, groundwater, and surface water immediately. After collecting 322 samples site-wide (on top of the 146 samples already analyzed), EPA promised they would release the data in spring or early summer of 2016. We finally received the data in late October. We then hoped EPA would talk about what they found, but they stuck to only discussing the agricultural lands and the human health and ecological risk assessments completed on those parcels.

It's good to know those agricultural lands are clean, especially for the new owners of some of those parcels. But for the larger community, the contaminated lands are the priority.

The analysis we are now waiting for includes running the sampling data through human health and ecological risk assessment models. These are important parts of a remedial investigation, as they can help identify data gaps, and will eventually help determine what type of cleanup is needed. When it's released, we'll look at those assessments too, and will suggest additional investigation if we feel it's needed. While 468 samples sounds like a lot, on a 3,200-acre site, that averages only one sample of soil, groundwater, stream sediment, or surface water per 6.8 acres. We want to make sure they don't miss anything. EPA promises to release this analysis in early 2017. We'll be looking for it.

EPA has gotten an earful about lack of transparency and limited public involvement in this process, and rightly so. A lot is at stake. The continued presence of cancer-causing chemicals in the soil and groundwater is highly troubling, and the ongoing contamination of groundwater, sediments, fish, and aquatic life is unacceptable. The good news is that the County's complaints have had an effect, and EPA is making data available and asking for comment on workplans. It's a big improvement.

The site holds enormous promise, the realization of which is long overdue. It includes a four-mile stretch of riverfront, contains 1,180 acres of restorable floodplain, and holds tremendous ecological, cultural, community, and economic potential. It's a rare opportunity to protect and improve the water quality, fish and wildlife habitat, and flood storage of the Clark Fork River on a large scale.

The Smurfit-Stone mill provided hundreds of good jobs as well as many useful consumer products during its 53 years. But paper production is a notoriously dirty industry, requiring large-scale use of highly toxic chemicals and solvents. We understand that many of the mill's years of operation pre-dated environmental laws and public expectations about corporate responsibility. But it's a new era for the Clark Fork River. The time has come to clean up this site once and for all.

Stay tuned on how you can be involved in the year ahead. There's incredible potential to do a big one right here—for people, wildlife, and the river.

Above: Cottonwood galleries along the Clark Fork near the mill site. Stakeholders envision expanding this healthy floodplain habitat through site cleanup and restoration. Below: Toxic sludge ponds dangerously close to the river. Riverside restoration is at last a possibility for this site.

**Many thanks to our partners: Confederated Salish and Kootenai Tribes, Montana Natural Resource Damage Program, Montana Fish, Wildlife and Parks, Missoula County Commissioners, Missoula Water Quality District, and the West Valley Community Council.*

Keeping it clean on the Clark Fork:

9.2 tons of trash hauled away

2.1 tons of recyclables re-

40 miles of river cleaned

1,000 river rock

Thank you to everyone who pitched in to keep our river clean! From the annual cleanup in Missoula, where you worked through cold temps and rain to clean up 15 miles of river banks, to the Drummond-to-Bear Gulch floating cleanup sponsored by our friends at the Ranch at Rock Creek, to "technical trash" cleanups along Reserve Street, to hot shot crews tackling hard-hit river access sites throughout the summer, you showed up in force to give back to the river that gives us so much. You are true river rock stars. As are the many awesome sponsors who made these events possible. It's a big watershed and it takes all of us to keep it clean and healthy. Thank you all!

2016 SPONSORS

A Carousel for Missoula

American Public Land Exchange

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Anaconda Disposal Services, Inc.

Betty's Divine

Big Dipper Ice Cream

Blackfoot Telecommunications Group

Boone and Crockett Club

Bravo! Catering

Clark Fork School

Costa Del Mar

Cravens Coffee

CTA Architects Engineers

Culligan Water Conditioning

Datsopoulos, MacDonald & Lind

Eastgate Rental and Party Center

Ellen and Craig Langel

Five on Black

Garlington, Lohn & Robinson

Geum Environmental Consulting

Green Hanger

Hellgate Canyon Storage

Missoula Downtown Association

Missoula Fire Department

Missoula Fresh Market

Missoula Police Department

Missoula Search & Rescue

Missoula Valley Water Quality District

Montana River Guides

Northwestern Energy

Ranch at Rock Creek

Red's Bar

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Temp Right Service, Inc.

The Kingfisher

The Trail Head

UM Watershed Clinic

Washington Corporations

Western Montana Clinic




Thanks for rocking it for the River this year.

Hope we see you again in 2018!

Clark Fork Cleanup









Clark Fork's Creek Crusader: Loren Pinski

Members of our Volunteer River Corps (VRC) are always ready to roll up their sleeves for the river. From collecting snowpack data to removing trash from riverbanks to restoring riparian areas, the VRC is active all year round. There is something for everyone, and although it can be hard work, it's also a lot of fun, it feels great, and you meet some wonderful folks along the way. One of these wonderful volunteers is Loren Pinski.

What brought you to Missoula and wh is your connection to the Clark For River?

I came to Missoula to go to college back in 1967. Those were the days when you didn't go down to the Clark Fork River, you drove over it, but you didn't go down to it. You had very little access to it. People, they might fish down where the Rattlesnake came in, but that was it, you didn't go down there.

It's pretty cool how we are cleaning up the river and how the whole river has been transformed. The changes that have taken place in town. The park running through town is incredible. When I came here there was a teepee burner down where Silver Park is pumping smoke into the air. Living in Missoula in the wintertime was like smoking a pack a day, that's what it was like!

What are your concerns about the he of the river?

One of the things I really like about the Clark Fork Coalition and the work you're doing is, if you know anything about history you always know there have been water wars, some have been fought with spears, some fought with guns, some in the courts. And there will always be different organizations that want the water from the watershed. Whether it's for fishing, or for agriculture, or for livestock, or to dilute chemicals, or to hide peoples' couches like we found out at the Deep Creek cleanup.

The thing I like about the Coalition is that your emphasis is the river, the quality of the river, and maintaining the quality of the river for a variety of different uses. It's a holistic approach, and a very basic approach. Your agenda is to make the Clark Fork drainage, whether it's Rock Creek, or Deer Lodge, or the Flathead, or the Blackfoot as viable a watershed as possible. And with climate change coming about, and I've seen its impact in other parts of the world, the kind of stuff you guys are doing is more important. So if I can help out a little bit, I'll help out a little bit!

Do you feel your work as a volunteer has impact?

Oh yeah, I'm retired and looking for ways not only to give back, but also to be active and be part of the community. To go out and clean up a bunch of garbage from along the river, that's pretty important stuff. To go out and help plant trees, help water trees to keep them alive from where a burn went through several years ago (see Lolo article, page 15). To me that's very important work and it makes you feel good.

What s your advice to someone who s interested in volunteering for the Clark Fork Coalition?

Just jump in and do it! There are plenty of opportunities for people to jump in, especially with the cleanups. You guys are a pretty easy group to volunteer with. It's a group of nice people. Katie's great to work with. Just volunteer.

Want to take Loren's advice and get involved with the Clark Fork Coalition's Volunteer River Corps?

Fill out an application at clarkfork.org or get in touch with Katie Racette, our volunteer coordinator, by email at katie@clarkfork.org or by phone at406-542-0539 x212. She's happy to answer questions, tell you about upcoming projects, or sign you up for our vol-

A Clark Fork for All of Us

A first-time raft trip is an unforgettable experience. Think: sheer joy, utter thrill, and unbridled happiness.

Each year we take 50-75 of kids from regional youth shelters and group homes on a whitewater rafting trip through Alberton Gorge on the Clark Fork River, connecting many of them to the river for the first time. It's the thrill of a lifetime and an experience they never forget.

The Clark Fork Kids Float lets these youngsters get outdoors, learn new skills, enjoy the river and all it has to offer, and help make the Clark Fork a bigger part of their lives. Our hope is that the experience sparks a broader understanding of the river and its surrounding ecosystem, helping tomorrow's leaders "see" the river for the first time, and perhaps even cultivating a desire to preserve and protect the watershed.

This year we added a bonus program that let the kids build on their new knowledge of the river by "adopting" a tributary for the summer. They learned new skills and a bit of riparian science along the way, as they helped care for a local stream in need.

This annual event is made possible by generous support of ROW Adventures and the many friends of the Clark Fork Coalition—like you!

Everyone deserves a great day on the river. Want to be a part of it in 2017? Contact Liz at `liz@clarkfork.org` to learn how.

"This is my favorite day of the year—it makes all the hard days worth it."

—Clark Fork Kids Float participant

Credit: Off Route Photography

A BEAUTIFUL LEGACY

2016 Memorial Float honors, remembers, inspires

"The river is a special place. A place to recreate, cast a fly line, and perhaps catch a respectable trout... It is also a place of peace and remembrance."

Last October a group of hearty souls braved the rain to join Laura and Matthew Churchman and Blackfoot River Outfitters on a special Memorial Float to honor lost loved ones. The Churchmans organized the event to honor the memory of their infant son, William Thomas. In his name, and in the memory of others, dozens of floaters, anglers, kids (and dogs!) enjoyed an excellent day on the river followed by a warm and wonderful reception, thanks to the generosity of numerous local sponsors.

The event raised nearly $12,000 for the Coalition's education programs – an incredible gift that will help engage more than 1,000 kids across the basin this year in science—and service-based watershed learning.

Photo by Kathi Nickel

Thank you again to the guides, donors, sponsors, floaters, BRO, and especially Laura and Matthew for creating this beautiful legacy for William Thomas, and for doing so much to inspire the next generation of river stewards.

BLACKFOOT RIVER OUTFITTER'S
MEMORIAL FLOAT
FRIDAY, OCTOBER 7, 2016

See photos and learn more at: memorialfloat.com

Photos by James Quirk

What lies between "before" and "after?"

Once upon a time, the Clark Fork headwaters were filled with dead zones, cleanup didn't exist, Milltown Dam stood with mountains of toxic contaminants piled behind it, and dam removal, floodplain recovery, and a restored Clark Fork-Blackfoot confluence was just a pipe dream. Communities turned their backs to the river, which was a de facto dumping ground, periodically running red between garbage-lined banks.

That was before.

Thanks to riverside communities, dedicated clean water advocates, and committed Coalition members and supporters, things have turned around in a big way for the Clark Fork. Now, in an "after" in which large-scale recovery is well underway, the conditions of "before" are hard to imagine.

The thing is, some of that "before" is still with us. And some new "befores" have emerged. They might be less obvious than a dam or a dead zone, but they are just as much – and in some cases more – of a threat to the long-term health of the watershed.

For example, climate change has led to significantly reduced snowpack, longer, hotter summers, and earlier runoff. Ever-increasing demand has lowered water tables and pushed creeks to their limits, leading chronic dewatering and excessive stream temperatures, which in turn are degrading habitat and threatening the survival of native trout. Further, this mineral-rich basin still beckons to the mining industry, which is ever eager to build two massive hard rock mines beneath the Cabinet Mountains in the Lower Clark Fork. These mines would permanently drain wilderness lakes, de-water critical bull trout habitat, and newly contaminate water resources (see page 6). And as more people seek adventure and recreation on our rivers, some of our waterways are literally at risk of being loved to death.

What's the "after" we seek now, and how do we get there?

In this issue of Currents we've described some of what we're doing to get there, and how we're tackling both new and lingering threats along the way. As always, it's YOU, our donors, members, and sponsors, who make it possible. You are who we rely on to pave the way between "before" and "after." And it is on that sometimes arduous but essential path where great things happen: where river advocates become river heroes, where what was damaged is healed, and where the waterways we cherish are transformed, protected, and made whole.

If you have not donated or renewed lately or are not a member, please join us. You are needed now more than ever, as we continue to restore the river, and as we enter a period of uncertainty about our bedrock environmental laws and the future of our water resources. We simply cannot get from "before" to "after" without you. Please – give and get involved today at clarkfork.org

SILVER BOW CREEK, 1998

SILVER BOW CREEK, 2011

CLARK FORK COALITION

MILLTOWN DAM BEFORE

MILLTOWN STATE PARK AFTER

CLARK FORK COALITION

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This. Forever.

Because of you.

Remember the Clark Fork Coalition in your will and help keep those smiles coming—forever.

It's easy it is to make a bequest for the river! Email **info@clarkfork.org** for a simple how-to guide.

Outmuscle the Mussels!

Invasive zebra and quagga mussels were found for the first time in Montana's waters last fall, posing a new and very serious threat to our waters that could have devastating consequences. Invasive mussels can decimate our fisheries, foul boats and docks, clog intake pipes, and fundamentally change the western Montana waters we love. For now they've only been found in the Missouri River watershed. Let's keep it that way. We'll be tackling this issue head-on in the coming year and could use your help ensuring these nasty invaders don't spread to the Clark Fork watershed. Here's what you can do:

MUSSEL ALERT

- **ALWAYS CLEAN, DRAIN, AND DRY YOUR BOATS AND GEAR!**
- **Always top at Inspection Stations**
- **Volunteer at clarkfork.org**
- **Help us fight this threat—please contribute at clarkfork.org**