

A Dry Legacy 2

Progress and New Threats in a Drought Year



Trout Unlimited
Colorado Water Project
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At first, Colorado may bring to mind bubbling brooks and mighty rivers. However, a deeper look reveals a landscape where rivers struggle to quench a thirsty population. Since the discovery of gold and silver in Colorado, people who settled here manipulated the state's rivers to meet their needs. Where they once flowed freely, rivers are now dammed and diverted, sometimes leaving only a trickle of water in the stream channel. Our rivers support fish and other aquatic and wildlife species, fuel substantial recreation and tourism, sustain cities and agriculture, and contribute to the high quality of life in Colorado. Yet, many are at risk due to the combination of a growing demand for water and a legal system that does not balance water uses with the needs of the rivers themselves.

In January 2002, Trout Unlimited released *A Dry Legacy: the Challenge for Colorado's Rivers (Dry Legacy I)*. It highlighted ten segments of Colorado rivers suffering from chronic low water and described how Colorado's water law enables dry rivers. The reasons include a "seniority" system that favors water rights and uses dating from a time long before people considered environmental values important, and a "use it or lose it" doctrine that discourages conservation. The report also described the 1973 law that first created the program to allow the Colorado Water Conservation Board (CWCB) to hold instream flow water rights.

One year later, Trout Unlimited issues this follow-up, highlighting recent developments, both positive and negative. None of the ten rivers listed in the original report had an increase in the amount of water flowing this past year. Instead, these rivers and others throughout the state suffered from extreme low flows as Colorado experienced the worst drought in 150 years. Fortunately, new legislation and cooperation provide ways to lessen the harm that drought brings. This year's report re-examines five of the 2002 river case studies to illustrate ways that stream flow conditions have or can be improved. It looks at a recent change to the water laws and at other new strategies that may help protect rivers. Last, it discusses key threats to rivers, fish and future recreation in Colorado, and suggests useful actions and solutions to help keep rivers flowing.

Dry Legacy 1 Solutions Update

Dry Legacy 1 made 14 specific recommendations for healthier rivers in Colorado. The strategies suggested were either available within the current system or in use in other states. Though most have yet to be implemented, 2002 did bring promising new developments.

North Fork of the Gunnison River

The North Fork of the Gunnison River provides an example of how community-based restoration can improve water flow in rivers. Last winter, the North Fork River Improvement Association (NFRIA), a local watershed group made up of concerned citizens, landowners, and water users, conducted a major restoration project on the river between Paonia and Hotchkiss. The project was funded by a diverse group of governmental agencies, foundations, and landowners, including the Colorado Department of Public Health and Environment, the CWCB, the National Fish and Wildlife Foundation and the National Park Service. The North Fork is an over-appropriated river with nine major irrigation diversions in approximately 20 miles, most of which utilize annual gravel "push-dams" that can divert the entire flow, completely drying up sections of the river. Restoration of four miles of the river channel and floodplain, and reconstruction of three irrigation ditch diversions has improved stream conditions. The channel reconstruction consolidated flows from a previously braided system into a concentrated single channel that provides deeper, faster, cooler water with more pools—healthier fish habitat. Construction of irrigation headgates to replace the "push-dams" leaves more water flowing in the river, while still allowing irrigators to divert the water to which they are entitled. It also allows fish migration and recreational small boat navigation. The benefits of this project became apparent during the summer of 2002 when the river flowed in areas that were dry previously, despite the severe drought.



Jeff Crane

This irrigation headgate was constructed to replace annual gravel "push-up" dam built with tractors that used to divert the entire flow of the North Fork of the Gunnison River.

Instream Flow Right Filings

In 1973, the Colorado Legislature recognized the value of flowing water and added a new feature to the water law system. For the first time, a single entity, the

Conejos River

The Conejos River in southern Colorado provides an example of how voluntary water trades and transfers can keep a river flowing. The Conejos experiences chronic low flows, especially below Platoro Reservoir. Two years ago, the San Luis Valley chapter of Trout Unlimited, in partnership with the US Forest Service and the Colorado Division of Wildlife (CDOW), performed a river restoration project that created deeper pools to improve trout habitat during low flow conditions. Unfortunately, the 2002 drought created hazards for fish beyond the help this restoration offered. Last summer, inflow to the reservoir was extremely low or non-existent. Because the federal legislation that transferred ownership of the reservoir from the Bureau of Reclamation to the Conejos Water Conservancy District (District) mandates that the District release 40 cubic feet per second of water, or the natural inflow, whichever is less, in the summer, the District was not required to release any water from Platoro downstream. Nevertheless, the District agreed to release water from the reservoir in exchange for a guarantee from the CDOW that the agency would repay the District 125% of the released water from a trans-mountain source at a later date when conditions allow. As a result, in August and September, the summer's driest two-month period, the District released 110 acre-feet of water to bolster stream flows. This solution provided critical life support for the river and fish.



Larry Bussey

The Conejos River in August, 2002. Restoration was done on this segment of the river two years ago.

CWCB (the state agency responsible for developing Colorado's share of water from interstate rivers) could hold instream flow water rights. Though a good tool for protecting healthy streams, the number of filings had dropped precipitously after the program's 25th anniversary year (none in 1999, eight in 2000, and one in 2001). However, in 2002 the CWCB filed for instream flow rights on 21 river segments across the state. When approved, these new filings will help prevent further decreases in flows on rivers in the San Miguel, Dolores, Gunnison, and South Platte watersheds. In one case, the CWCB used citizen-submitted data, which is an important demonstration that the public can be a partner in the program.

Senate Bill 156

The newest tool to protect river flows in Colorado is Senate Bill 156 (SB 156), passed at the end of the 2002 legislative session. SB156 expands the CWCB's instream flow program to allow for acquisition—by donation or purchase—of senior diversionary water rights for conversion to instream flow rights. The CWCB may use these rights for *reasonable* flows to *improve* the environment from current conditions, whereas the previous law referred only to *minimum* flows to *preserve* the existing environment. SB 156 gives the CWCB more tools for improving flows in Colorado's streams - which is good for quality of life and for the economy.

Recreational Instream Channel Diversions (RICDs)

Protecting rivers is not just about protecting fish; Colorado's water recreational economy is becoming more and more important. Fishing alone injects \$1.5 billion into Colorado's economy, and low stream flows can have a devastating effect on both the fishing and rafting industries. The summer of 2002 saw a 30% decline in fishing gear sales, and according to the Colorado Division of Wildlife, an estimated 15% decline in fishing license sales. Many of the most popular rafting rivers were unable to support commercial boating all season. Drought, combined with existing low flows, resulted in a decrease by 25-40% of rafting revenue in the state. The economies of many communities suffer without adequate stream flows, particularly in rural areas where recreation can be a significant portion of economic activity. To ensure the health of the state's economy, it is imperative that future water management policy takes into account the importance of water recreation in Colorado.

As the state's economy shifts focus to recreation, Colorado law is evolving to recognize the legitimacy of instream recreational use of water. The Colorado Supreme Court first upheld a water right for recreational instream use in 1992, but the CWCB remained hostile to

these filings. In 2001, the Colorado General Assembly passed SB 216, both to limit the magnitude of these types of rights, and to require consultation with the CWCB prior to an applicant receiving a water right. Unfortunately, the CWCB is still actively opposing applications for recreational rights filed before the passage of SB 216; as a result, the Colorado Supreme Court is considering the validity of several rights awarded in the last few years. The CWCB is also recommending minimum amounts for proposals filed under the new law. Nevertheless, across the state, local governments continue to pursue instream recreational water rights. Though these rights are junior to existing diversions, they will function to prevent future diversions or changes in existing diversions from further dewatering important streams.

Federal Farm Bill

Though Colorado's economy is steadily shifting away from agriculture, agricultural irrigation still accounts for approximately 90 percent of Colorado's annual water consumption. Across the state, most irrigation practices are highly inefficient, resulting in the withdrawal of significantly more water from Colorado's rivers than is necessary to sustain the agricultural economy.

The federal Farm Security and Rural Investment Act of 2002 (Farm Bill) contains the largest commitment of federal funding ever available for irrigation improvement projects. Under the Farm Bill program, an irrigator can receive full reimbursement from the federal government for the costs of implementing a project that enhances irrigation efficiency, such as lining an irrigation ditch or installing a drip irrigation system. The Farm Bill's goal of promoting continued agricultural production, and the open spaces that come with it, while simultaneously protecting environmental quality, is one that Colorado should embrace.

Some western states have taken steps to create incentives to conserve water and allow or require some percentage of water salvaged through efficiency improvements to be dedicated to instream flows. Unfortunately, under Colorado law, water that is salvaged through improved efficiency belongs to the next downstream user and the newly efficient user does not have the right to dedicate that water to the river. Colorado's broad "use it or lose it" simply fosters a disincentive to improve efficiency.

Colorado should amend its law instead to create incentives, to conserve water and to allow for a portion of salvaged water to be dedicated for instream flows. Even without such a change in the law, however, use of Farm Bill funds to finance efficiency improvements, as well as restore riparian areas, could noticeably benefit Colorado's waters quality and flows.



Karen Kristopherson

Bear Creek

Bear Creek, a popular foothills trout stream southwest of Denver, is a Class 1, Coldwater fishery that nonetheless suffers from warm temperatures and low flows. From Mt. Evans down to the South Platte River, Bear Creek goes through many diversions, two reservoirs and three water treatment plants increasing its water temperature significantly along the way. Rapid urban growth has exacerbated the problem, leading to several trout kills in recent years. The summer of 2002 saw the worst yet. At the suggestion of the Water Quality Control Commission (Commission), concerned citizens purchased the equipment and spent the time necessary to collect hourly temperature data for several weeks. Their results showed that the Creek's water temperatures exceeded its water quality standards. Members of the Trout Unlimited Evergreen Chapter and Friends of Bear Creek presented these data to the Commission in October 2002 so that the Commission would list Bear Creek as "impaired" under the Clean Water Act. The state must investigate listed streams and develop restoration plans for them. The Water Quality Control Division and the CDOW supported listing Bear Creek, but, despite the strong evidence and support, the Commission chose instead to recommend Bear Creek for additional monitoring and evaluation. This action assures studies, but not restoration. The next opportunity to gain listing for Bear Creek is likely until at least 2006. The local groups' experience is an illustration of how citizens can fight to apply federal standards for "thermal pollution" to protect a stream, with high-tech low-cost methods to gather their own information. Unfortunately for Bear Creek, it will now be a longer wait before it sees restoration to its proper status as one of the best small-stream trout habitats within easy access of Front Range anglers.

New Threats to Instream Flows

Colorado is seeing an increasing number of new threats to rivers. Last year's dry conditions had effects that reached across the state as precipitation levels from September 2001 through August 2002 were the lowest ever recorded in Colorado. The drought is forcing water managers, legislators, and state officials to address current and future water shortages. Unfortunately, many of the proposed solutions will endanger rivers, wildlife and recreation in Colorado.

Roaring Fork River

Many of the problems with Colorado water law and water management policies have become much more apparent since the drought began. For example, Colorado does not provide flexibility to prevent streams from drying up during unusual events like drought, notwithstanding the state instream flow program. Consider the plight of the Roaring Fork River near Aspen this past summer. One of Colorado's best trout fisheries, the Roaring Fork was so dry that struggling fish could live only in isolated pools. The City of Glenwood Springs and an upstream irrigation company with senior water rights worked out a temporary agreement to transfer water downstream for Glenwood Springs to use to irrigate its ball fields while, at the same time, putting water in the river for fish from Aspen to Glenwood Springs. The City of Aspen agreed to help finance the deal. While current state law allows for emergency trades of water in drought conditions when needed for irrigation or efficiency, Colorado's water administrator, the State Engineer, refused to allow the water trade to preserve this river. In this case, a creative approach by various interests within the limits of the law was not enough to protect the Roaring Fork River from drying up. As a result, some state legislators plan to introduce bills this winter to clarify that temporary trades for instream flow benefits are legal.

San Miguel River

Considered one of Colorado's last free flowing rivers, the San Miguel suffers from a lack of water and is under increasing pressure for water development as the population of southwestern Colorado increases. A number of diversion structures can leave 15 miles of the river dewatered during later summer, threatening fish and many globally rare riparian plant communities. Last year, the Bureau of Land Management and CDOW made recommendations to the CWCB for instream flow protections on a 24-mile stretch above the dewatered segment of the San Miguel. When in place, the instream flow right will help preserve the river and protect it from future development. Though this is helpful for the San Miguel River as a whole, the new filings will not help its most endangered reach.

New Interest in Old Proposals

The drought has also created new interest in old proposals shelved for various reasons, including impracticality. This winter, the CWCB will ask the Colorado legislature to fund a \$500,000 feasibility study of the Colorado River Return Project (known the "Big Straw"), an old proposal to pump Colorado River water from the Utah state line back to the Continental Divide for use primarily on the Front Range. This project would be extraordinarily expensive (the original proponent of the Big Straw recently calculated that the pipeline alone could cost \$2.5 billion). While the idea of a Big Straw capturing water before it leaves Colorado may sound attractive, it would create a major set of environmental and water quality problems.

Other resurrected proposals will also be on the table this legislative session. Among those will be bills promoting other large, new, storage projects, some of which have been previously identified as excessively

Snowmass Creek

As described in *Dry Legacy I*, the Snowmass-Capitol Creek Caucus has demonstrated that getting involved in Colorado's water law system is both costly and complicated. The Caucus has advocated for the protection of Snowmass Creek since 1977, and its most recent fight resulted in a disappointing resolution. The headwaters of Snowmass Creek are protected within the Maroon Bells – Snowmass Wilderness, but as the stream leaves the wilderness, it passes near Snowmass Village and the Snowmass Ski Area, for which the stream is the principle source of water. New developments and diversions for intensive water use at a new golf course threaten the creek. Studies conducted by the Caucus's biologist found that low flows interfere with the successful trout reproduction. Using these data, the Caucus and seven

other organizations, including the Ferdinand Hayden Chapter of Trout Unlimited, petitioned the U.S. Army Corps of Engineers (COE) to put new conditions on the permit issued to the Snowmass Water and Sanitation District to protect creek flows. Though initially the COE indicated that it was considering the petition, after significant political pressure from the CWCB and others, the COE put the petition on hold, pending additional study. As a result, the CDOW is now starting an 8-10 year study to monitor fish populations in Snowmass Creek. Despite the COE's decision not to restrict diversions, the Caucus will continue to work towards better protection for Snowmass Creek by doing its own studies, pursue legal action, and collaborating with neighbors to educate the community.

costly and therefore abandoned. In addition, there will be a number of proposals to provide new or easier financing for such storage projects, including a re-run of a \$10 billion bonding bill that Trout Unlimited worked with others to kill during last summer's special legislative session.

Federal Reserved Rights and the Black Canyon

Among other new threats to state rivers is a substantial weakening of federal protection for federal water rights. Using reserved rights, federal land management agencies have the ability to protect rivers flowing across federal public lands in national forests, parks, monuments and refuges. However, most Colorado water users object to the agencies' exercising their authority. After years of deliberation, in January 2001, the National Park Service applied to quantify a reserved right for the Black Canyon of the Gunnison National Park, seeking both a modest base flow and a spring peak flow ranging from 2,000 to 12,000 cfs, depending on water availability in a particular year.

Established in 1933 to preserve "the roar of the river," the park is not only a spectacular landscape but is also home to one of the best trout fisheries in Colorado. In September 2002, the federal Departments of Interior and Justice announced that the Park Service would agree, effectively, to relinquish most of the water it had. By proposing to make almost all of its water rights junior to both existing and future water users, including possible future projects to take Gunnison River water to the Front Range, the Park Service will not be able to maintain the river through the canyon.



Mark Lance

The Black Canyon of the Gunnison National Park, established to protect the "roar of the river," is under new threat due to a reversal of policy on federal reserved water rights.



Biodiversity Associates

Coon Creek Demonstration Project in Wyoming illustrates the type of cutting needed to see an increase in surface runoff into streams.

Logging for Water

Some state officials advocate logging state and national forests as another way to increase water available for use. Their argument is that dense trees in high elevations take water that would otherwise flow into streams. The scientific research that has been done on this issue shows that removing trees may indeed create an increase in run-off, but at a high ecological cost. Between 25 and 40 percent of the watershed forest needs to be cut to produce an increase in water yield, and then the increase comes only during wet-year spring runoff periods when Colorado always has more water than it needs. As a result, this strategy would require new and enlarged reservoirs to prevent flooding and to store the water for later use. To maintain the increase in flow, the clear-cutting and thinning of these forests would have to continue.

Logging for water can also be catastrophic for the local stream fishery. Increases in sediment that muddies the water, loss of the woody debris that form pools for fish habitat, and the likely increases in water temperature because of the lack of shade all contribute to the decline of fisheries in logged forests. These harvests would also create checkerboard forests with patches of clear-cuts, and destroy grand mountain vistas that are so important to eco-tourism in Colorado.

Solutions for the Future

Restoring Colorado's rivers and finding solutions to water shortages can go hand-in-hand. Instead of resorting to building huge new water storage projects and cutting forests, state officials and water managers need to turn to cheaper, more immediate and less environmentally harmful approaches to water management. There are also many ways that state agencies can protect Colorado rivers for the future.

Recommendations

Among the solutions Trout Unlimited recommends are the following:

- Encouraging agriculture and municipal conservation to stretch existing water supplies and reduce the need for new dams and diversions.
- Investing in better stream monitoring to enhance enforcement of instream flow rights and provide data on water quality.
- Recognizing water rights for federal agencies for the protection of rivers on public lands.
- Restoring or enlarging existing reservoirs before building new ones.
- Encouraging cooperation among water users to share supplies, via trading, dry-year leasing (designed to make it easier for cities to lease agricultural water on a short term, emergency basis) and similar strategies.
- Allowing emergency trading of water rights for instream flow protection during droughts.
- Filing for additional instream flow rights on rivers that need protection.
- Promoting river restoration projects on threatened streams.

You Can Help

While many of the measures needed to protect Colorado's streams are matters of public policy, individuals can make a difference. The following is a list of actions that concerned people can take:

- Practice water conservation measures at home by landscaping with drought tolerant plants and installing low-flow fixtures, as well as promptly repairing leaks.
- Become drought literate. Understand that there are no easy solutions to current and future water shortages. Appreciate that water quantity and quality must be everyone's concern.
- Get involved with your local Trout Unlimited chapter or watershed group. These organizations are always looking for volunteers willing to help monitor and restore rivers in Colorado.
- Use your voice. If you would like to see Colorado's water system adapt to meet the need of the rivers, become involved with any of several organizations working to reform water management policy in the state.

To learn more about water conservation, your local rivers and streams, or the groups that are working to protect rivers, visit the following websites:

Colorado Environmental Coalition:
<http://www.ourcolorado.org>

Colorado Office of Water Conservation:
<http://cwcb.state.co.us/owc/Officewc.htm>

Colorado State University:
<http://waterknowledge.colostate.edu/conserve.htm>

Colorado Trout Unlimited:
<http://www.cotrout.org>

Colorado Water Conservation Board:
<http://cwcb.state.co.us/>

Colorado Watershed Assembly:
<http://www.coloradowater.org>

Land and Water Fund of the Rockies:
<http://www.lawfund.org>

US Geological Survey:
<http://water.usgs.gov/>

Water Information Program:
<http://www.waterinfo.org/cnsrv.html>

Xeriscape Colorado:
<http://www.xeriscape.org>

Sources Used

- American Sportfishing Association, 2001. *Values of Our Traditional Pastime*.
- Clean Water Action Plan, 2002. <http://www.cleanwater.gov/success/gunnison.html>
- Colorado Climate Center, 2002. <http://climate.atmos.colostate.edu/>
- Colorado Division of Water Resources, 2002. <http://water.state.co.us/>
- Colorado Division of Wildlife, 2002. *Fishing License Sales*.
- Colorado Water Conservation Board. *2002 Instream Flow Appropriations*. <http://cwcb.state.co.us/isf/2002/2002.htm>
- Crane, Jeff, 2002. *Midway Enhancement Project*. North Fork River Improvement Association.
- Evergreen Trout Unlimited, 2002. www.coloradofishing.net/etu/
- Human, Katy. *Climatologist: Future is Dry*. The Daily Camera (Boulder, CO). Nov. 21, 2002.
- Kuharich, Rod. *Memo to Colorado Conservation Board Members, RE: Added Agenda Item 24 – Snowmass Water and Sanitation District 404 Permit*. Sept. 14, 2001. Colorado Water Conservation Board. Denver, CO.
- Mckee, Thomas B., et al. 2002. *Water in the Balance: A History of Drought in Colorado*. Colorado Water Resources Research Institute.
- Jonathan Rhodes, et al. 1998. *Thinning for Increased Water Yield in the Sierra Nevada: Free Lunch or Pie in the Sky?* Pacific Rivers Council.
- Northwest Council of Governments, 2002. *Roaring Fork River Watershed Plan*. www.nwc.cog.co.us/Water/PDF/RF02REV_final.pdf
- Preskill, Adam. *Tough Times for Trout in the Roaring Fork River*. Aspen Daily Times (Aspen, CO), Aug. 20, 2002.
- Roaring Fork Conservancy, 2002. www.roaringfork.org/
- San Miguel Watershed Coalition, 2002. www.co.blm.gov/ubra/coalition.htm
- Snowmass-Capitol Creek Caucus, Fall 2002. *Snowmass-Capitol Creek Caucus – White Paper on Snowmass Creek Issues*.
- Stein, Theo. *Clear-cut Drought Solution?* The Denver Post (Denver, CO), Nov. 10, 2002.
- Troendle, Charles A., et al. 2000. "Estimating Additional Water Yield From Changes in Management of National Forests in the North Platte Basin." Bureau of Reclamation.
- United States Geological Survey, 2002. <http://co.water.usgs.gov/drought/index.html>
- Vandiver, Steven E. *Memo to Jeff Madison, CDOW, and Bob Robins, Conejos Water Conservancy District*, Nov. 7, 2002. Division of Water Resources, Division III. Alamosa, CO.
- Willett, Michael J. *Memo to Jeff Madison, CDOW, RE: Platoro Reservoir Fishery Flows*. August 23, 2002. Conejos Water Conservancy District. Manassa, CO.
- Wohl, Ellen. *Virtual Rivers*. Yale University, 2001.

Cover Photo: North Fork of the Gunnison River, Elizabeth Russell

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Trout Unlimited's Colorado Water Project produced this report to further its mission to work primarily at the state level in decisions affecting water allocation and quality, so as to restore and maintain stream flows for healthy coldwater fisheries and increase meaningful participation in these decisions.