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# Colorado's Rivers: A Report Card

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An Assessment of the Condition of Eight Rivers in Colorado



# COLORADO IS FAMOUS FOR ITS RAGING RIVERS, CASCADING STREAMS, AND BABBLING CREEKS

Coloradans and visitors to our state love the pristine wilderness, incredible landscapes, and top-notch recreation opportunities afforded by our natural environment. The foundation of our landscapes is water, from the trickle of snowmelt in the mountains to the mighty Colorado River.



*Colorado has eight major river basins, each of which is unique in its environment, people, economy, history, and cultural values.*

In this report, we analyze one river from each basin and assign it a letter grade based on factors including flow, amount of water diverted out of the basin, water quality, and major dams. Other factors such as water use, recreation, fisheries, nearby energy production, pollution, and surrounding landscapes are taken into account and will be discussed in the report, but not graded.

## GRADE KEY

- A EXCELLENT** - In excellent condition and therefore must be cared for and preserved.
- B GOOD** - Fully functioning but threatened. The river must be closely monitored and cared for to prevent any downgrades.
- C NEEDS WORK** - In mediocre condition and on the precipice of either recovery or failure. Needs attention to prevent further downgrades.
- D BAD** - Severely damaged from diversion, damming, or climate change and requiring immediate conservation action to prevent the total loss of its natural state.
- F FAILING** - Has been severely altered from its natural state. In dire need of action and / or changes to management practices.

# IN ORDER TO PROTECT OUR RIVERS,

we must first know what threatens them. By calling attention to some of the challenges that plague Colorado's rivers, we hope to increase awareness and spur action to protect, restore, and conserve Colorado's most valuable resource: water.

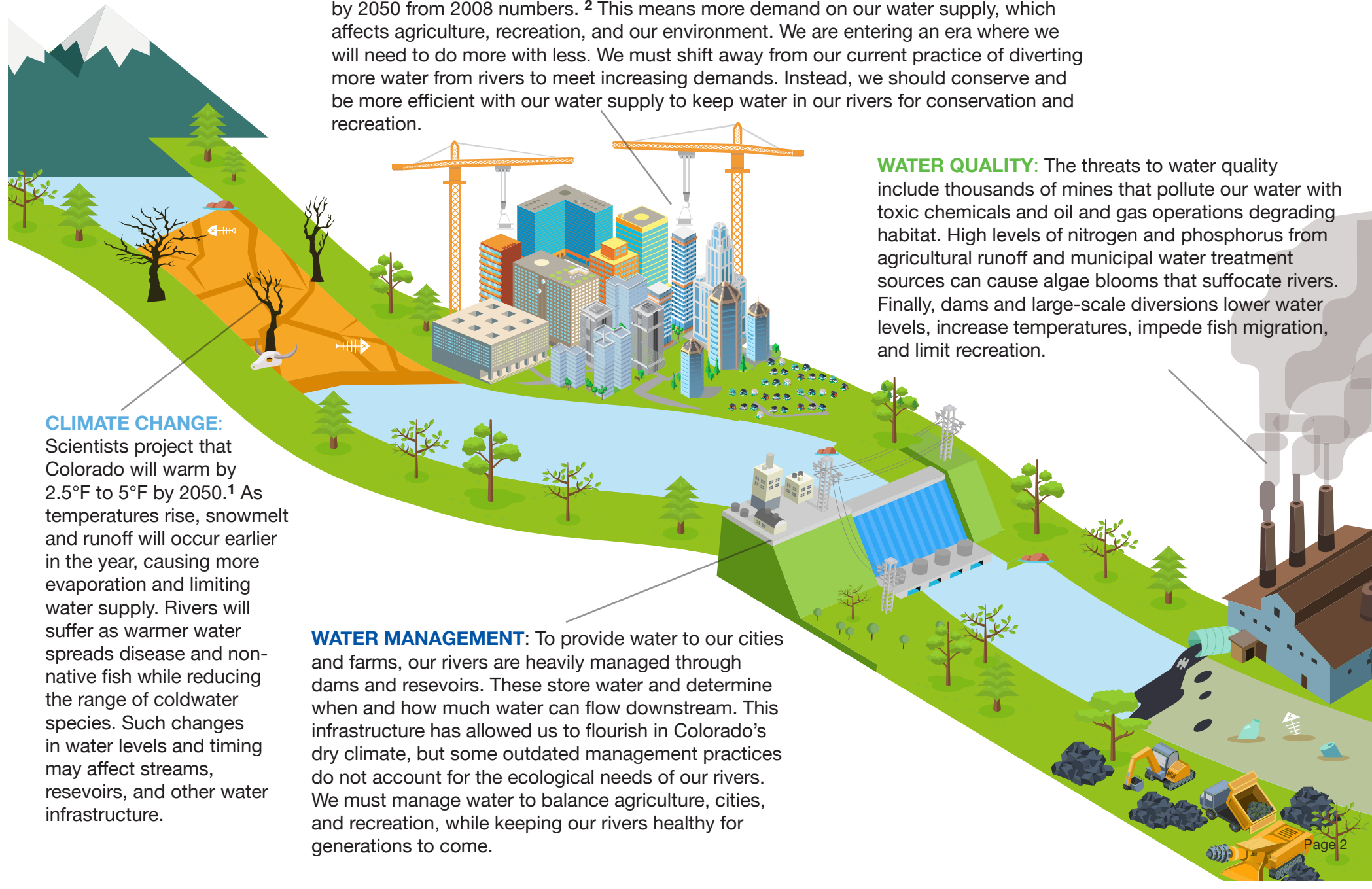
**INCREASING DEMAND:** Predictions show Colorado's population will nearly double by 2050 from 2008 numbers.<sup>2</sup> This means more demand on our water supply, which affects agriculture, recreation, and our environment. We are entering an era where we will need to do more with less. We must shift away from our current practice of diverting more water from rivers to meet increasing demands. Instead, we should conserve and be more efficient with our water supply to keep water in our rivers for conservation and recreation.

**WATER QUALITY:** The threats to water quality include thousands of mines that pollute our water with toxic chemicals and oil and gas operations degrading habitat. High levels of nitrogen and phosphorus from agricultural runoff and municipal water treatment sources can cause algae blooms that suffocate rivers. Finally, dams and large-scale diversions lower water levels, increase temperatures, impede fish migration, and limit recreation.

## CLIMATE CHANGE:

Scientists project that Colorado will warm by 2.5°F to 5°F by 2050.<sup>1</sup> As temperatures rise, snowmelt and runoff will occur earlier in the year, causing more evaporation and limiting water supply. Rivers will suffer as warmer water spreads disease and non-native fish while reducing the range of coldwater species. Such changes in water levels and timing may affect streams, reservoirs, and other water infrastructure.

**WATER MANAGEMENT:** To provide water to our cities and farms, our rivers are heavily managed through dams and reservoirs. These store water and determine when and how much water can flow downstream. This infrastructure has allowed us to flourish in Colorado's dry climate, but some outdated management practices do not account for the ecological needs of our rivers. We must manage water to balance agriculture, cities, and recreation, while keeping our rivers healthy for generations to come.



# The Arkansas River

## A Recreation Destination



The Arkansas River basin is the largest basin in Colorado, accounting for 27 percent of the state's total land area. As a tributary to the Mississippi River, the mighty Arkansas serves several states as it flows east and eventually spills into the Gulf of Mexico.

The upper Arkansas River valley is famous for trout fishing and whitewater rafting and recreation and tourism account for over \$1 billion in income per year in the basin.<sup>3</sup> The area is home to Browns Canyon National Monument, a popular destination for commercial rafting, and the longest stretch of gold medal fishing waters in the state. Unfortunately, the headwaters of the Arkansas River are tainted by mining pollution. Old hardrock mines in the mountains around the upper Arkansas have leaked toxic mining waste into the river for decades, leading to its current state

as a "mining impaired stream," according to the Colorado Division of Reclamation, Mining and Safety. There have been various reclamation and cleanup efforts that have improved the river from its previous state of severe water quality impairment,<sup>4</sup> but the fight is not over as pollution from these sites continues to impact the river.

Downriver, out of the mountains and onto the plains, the lower Arkansas serves as the primary water source for the cities of Pueblo and Colorado Springs as well as an established agricultural economy. As the population skyrockets on the Front Range, the lower Arkansas faces troubling challenges to meeting rising water demands in the municipal and commercial sectors while also sustaining its agricultural users.

### FROM SUPERFUND SITE TO GOLD MEDAL FISHERY

In the upper stretch of the Arkansas, there have been improvements in water quality due to extensive cleanup efforts by the Environmental Protection Agency and other entities. In the lower basin, some irrigators are choosing to participate in water conservation programs and are advocating for other tools to improve flexibility for sharing and leasing water. These tools and programs avoid drying up farmland and help our existing water supply go further. The Arkansas River has shown there are real solutions available for improving and sustaining our waterways. By bettering and continuing these practices, we can ensure this unique area will be enjoyed by future generations and benefit all water users.

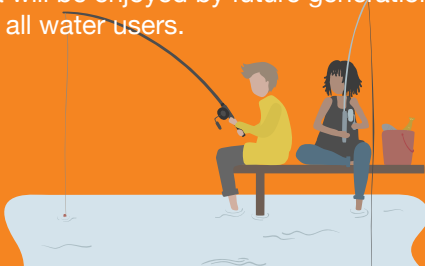


Photo by Bob Wick, BLM

# THE ARKANSAS RIVER BREAKDOWN

## Water Flow



Flows on the Arkansas have decreased by 17 percent over the last 10 years compared with historic flows on the river.

## Water Quality



The Arkansas River struggles with water quality. Hardrock mining waste runoff at the headwaters pollutes the river with iron and other metals, and excessive nitrogen and phosphorus cause proliferation of algae which can suffocate ecosystems and impair drinking water.

## Water Diverted out of Basin



A considerable amount of surface water is diverted out of the Arkansas River basin each year. Most of the water that leaves the basin is used by the Denver metro area.

## Major Dams



The mainstem of the Arkansas has two major dams that form Lake Pueblo and John Martin Reservoir. While this storage capacity is important for the region's cities and agricultural production, these dams severely alter the natural hydrology of a river and harm aquatic species, and it's important that they are responsibly managed to avoid any further harm to the river.

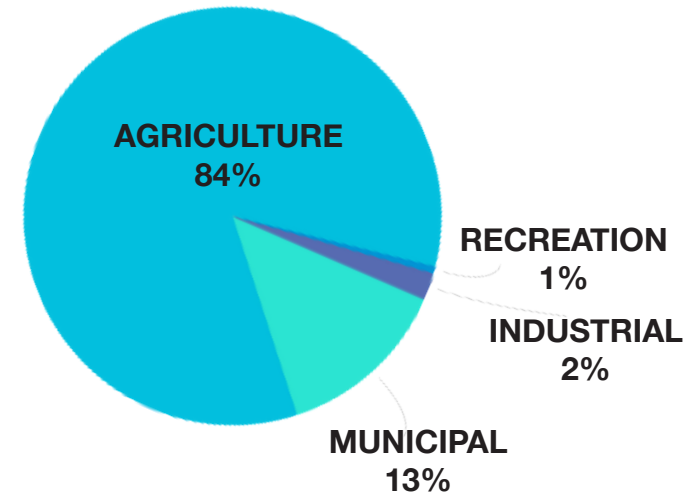
## Other Factors

Recreation and tourism contribute \$1 billion to the economy of the basin and, therefore, are a very important component to foster.



While much of the upper stretch of river has improved considerably, not enough water is sent downstream past Colorado Springs and Pueblo to farmers who struggle to irrigate their crops. It's important to continue the progress already being made in the basin to improve quality and meet demand.

## Arkansas Basin Water Use:



The Arkansas River basin has the second-highest municipal and commercial water use in the state, after the South Platte River, due to the cities of Pueblo and Colorado Springs. As these urban areas continue to grow, it will be important to responsibly manage water consumption, storage, recreation, and conservation.



“The Arkansas River is the lifeblood of the Upper Arkansas Valley, connecting our communities and energizing our recreational and agricultural economies; the river unites us.”

-Keith Baker, Chaffee County Commissioner, Buena Vista

# The Colorado River

## The Backbone of the West



Photo by John Fielder

The Colorado River has long been called the “American Nile.” It provides water and livelihoods to more than 35 million people across the southwestern United States and Mexico.<sup>5</sup> Consequently, the river is also one of the most threatened in the entire country. Colorado is the headwater state for this extraordinary river, and we have the opportunity to help improve its health and vitality.

The Colorado River supplies more water for Coloradans than any other river in the state. Large pipelines transport its water from the Western Slope through the Rocky Mountains to the Front Range, where over 85 percent of the state’s population resides and some of our most productive agricultural industry is located. While these diversions have allowed Colorado’s Front Range to flourish, the dams, reservoirs, and depletions of the river’s flow have had significant consequences for Western Slope communities and the ecological viability of the river and its tributaries.

Climate change further threatens to degrade the Colorado River. Decreases in flow, increased evaporation due to higher temperatures, and diminishing snowpack will significantly increase the gap between supply and demand. If less water is available in the future, conflict may arise between states for the right to divert from the Colorado River. If we don’t act soon to address climate change and implement municipal conservation goals, the consequences for the Colorado will be severe and swift, much like the river itself.



As an owner of an organic farm, I see firsthand how this river provides basic needs for people across Colorado and the Southwestern United States. We must do all we can to protect and replenish this mighty river, while meeting our water needs. ”



*-Jessica Washkowiak,  
Owner of Field to Fork  
CSA, Palisade, Colorado*

# THE COLORADO RIVER BREAKDOWN

## Water Flow **D**

The Colorado has been greatly altered by human demands. Tributaries such as the Blue River, the Frying Pan River, and the Fraser River have had up to 60 percent of their water withdrawn from their upper stretches and diverted to the Front Range.

## Water Quality **C**

Water quality on the Colorado needs improvement. Runoff from agriculture, high levels of salts, and other inorganic compounds threaten water supply for agricultural and municipal uses. Additionally, water temperatures are rising, which could harm coldwater fisheries.

## Water Diverted out of Basin **F**

Compared to every other basin in the state, more than double the amount of water is diverted across the Continental Divide from the Colorado River basin each year. This is not sustainable and is particularly harmful to Western Slope communities.

## Major Dams **D**

The upper Colorado River and its tributaries are rife with dams and reservoirs that serve mountain communities and from which water is diverted to the Front Range.

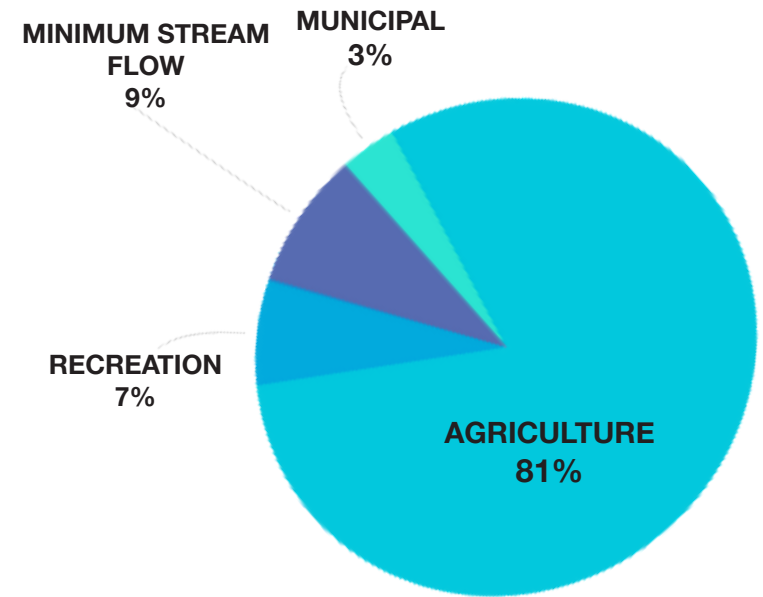
## Other Factors

The upper stretches of the river provide excellent trout fishing in gold medal waters, and the entire river and many of its tributaries are popular for rafting and boating.



Fundamentally, the Colorado River is not in good condition. While it provides so much for so many, our current demand trajectory is not sustainable.

# Colorado Basin Water Use:



While such a high proportion of its flow is diverted to the Front Range, water from the Colorado River serves many uses within its own basin as well. The headwaters counties rely heavily on tourism, including skiing (resorts use river water for snowmaking), whitewater rafting, boating, and fishing. The lower reach of the river in Colorado provides water for the city of Grand Junction, viticulture and other agriculture, and a strong recreation economy.

### URBAN WATER SOLUTIONS

With a huge portion of the Colorado River's water being diverted to our cities and towns (a full 50 percent of Denver's water comes from the Colorado River), it is imperative we continue to work together to increase water conservation so that our existing water supply can go further, rather than demanding more water from this river. When it comes to water in Colorado, we are all in this together, and the Colorado River is greatly impacted by water use across the state.

# The Dolores River

## The River of Sorrows



Those who have had the privilege of experiencing the Dolores River below the McPhee Dam know firsthand that it is a river worth fighting for. It has faced numerous challenges over the years, including dams, high water demands, mining pollution, and climate change. This river is severely threatened, and the steps we take now to improve and protect it will determine the viability of this distinct river and the communities it serves in the future.

In the years when ample snowpack leads to releases from the dam, rafters gather to take advantage of the fleeting opportunity to revel in the splendor of one of the West's most spectacular landscapes and the rare chance to boat downstream portions of the river. When the river runs high, recreation and tourism provide a huge boost to the local economies of small towns like Dove Creek, Naturita, and Bedrock, while also providing enormous benefits to the landscape itself.

The McPhee Reservoir, built in 1986, has had devastating consequences for the Dolores. Current river management requires the immense reservoir to be full before releasing water into the river, and in recent years snowpack and inflows have rarely provided the conditions for releases to occur.

### A CALL TO ACTION

It's daunting to contemplate all the various threats and issues that plague the Dolores. The river is loved so dearly and plays such an integral role in the community and landscape that numerous efforts have been undertaken to restore some of the majesty to the river. But the work continues. Our low grade of a D- is a call to action to use the tools that we already have, such as instream flow protections and stakeholder collaboratives focused on improving river management, and develop innovative new solutions so that the "River of Sorrows" can be given the chance to once again bring joy to us all.



Photo by John Fielder



# THE DOLORES RIVER BREAKDOWN

## Water Flow

**F**

Flows on the Dolores River have decreased more than any river examined in this report. Based on flow data from the last 10 years, the McPhee Dam has reduced the river's flows by 50 percent.

## Water Quality

**D**

Low and reduced flows in the Dolores have resulted in dramatic increases in water temperature and increases in silt and sediment, both of which threaten coldwater native fish species. The river is also polluted by uranium tailings and runoff from old mines at the headwaters.

## Water Diverted out of Basin

**F**

The Dolores River has the second-highest amount of water diverted from it of the rivers in this report. Nearly two-thirds of the entire volume of the river is diverted every year, which is incredibly unsustainable if we aim to conserve this river for the future.

## Major Dams

**C**

The Dolores has only one major on-channel dam, but the reservoir it creates is one of the state's largest. Since completion of the dam, flows on the river have been severely impaired. The responsible management of McPhee Dam is a critical component of the viability of the lower Dolores River.

## Other Factors

Local groups have done tremendous work to try to conserve and responsibly manage this river in order to help it serve the region's agricultural and recreational communities and improve overall river health. The unique beauty of the Dolores is unquestionable, and it is through the efforts of local water conservation and activism groups that its condition can be improved.



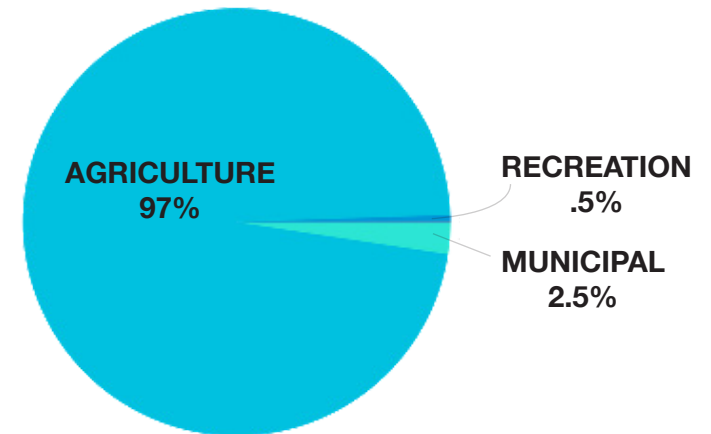
Overall, the Dolores River is in poor condition below the McPhee Dam, but it is in no way a lost cause.



“The Dolores River is truly unique and diverse from both an ecological standpoint and a recreational one. Few people know the river's beauty, from the old growth ponderosa forests not far below McPhee Reservoir to the deep desert canyons 170 miles downstream where she meets the Colorado River. Native fish species below the dam are struggling, and the Dolores River is one of the most unknown and underutilized recreational resources in the state of Colorado. Drought and over-allocation of the river's water threaten its very existence and ecology.”

*-Josh Munson, Board Vice President, Dolores River Boating Advocates*

## Southwest Basin Water Use:



The Southwest basin includes the Dolores, San Miguel, and San Juan Rivers. It is home to the cities of Durango and Cortez as well as the only two Native American reservations in the state, the Ute Mountain Ute and the Southern Ute. A rich agricultural economy in the region produces a variety of crops.

# North Fork of the Gunnison River

Feeding a Sustainable Community



## A UNIQUE OPPORTUNITY

The North Fork Valley has transformed from an area dependent on mining to having the highest concentration of organic farming in the state. Now we have a singular opportunity to prevent degradation of the river and its landscape from oil and gas drilling. Like nowhere else in the state, the connection that the valley's organic and small-scale farmers have to the land and water around them is the driver of a healthy community. The people who call this place home are dependent on clean air and healthy rivers for their livelihoods and lifestyles.

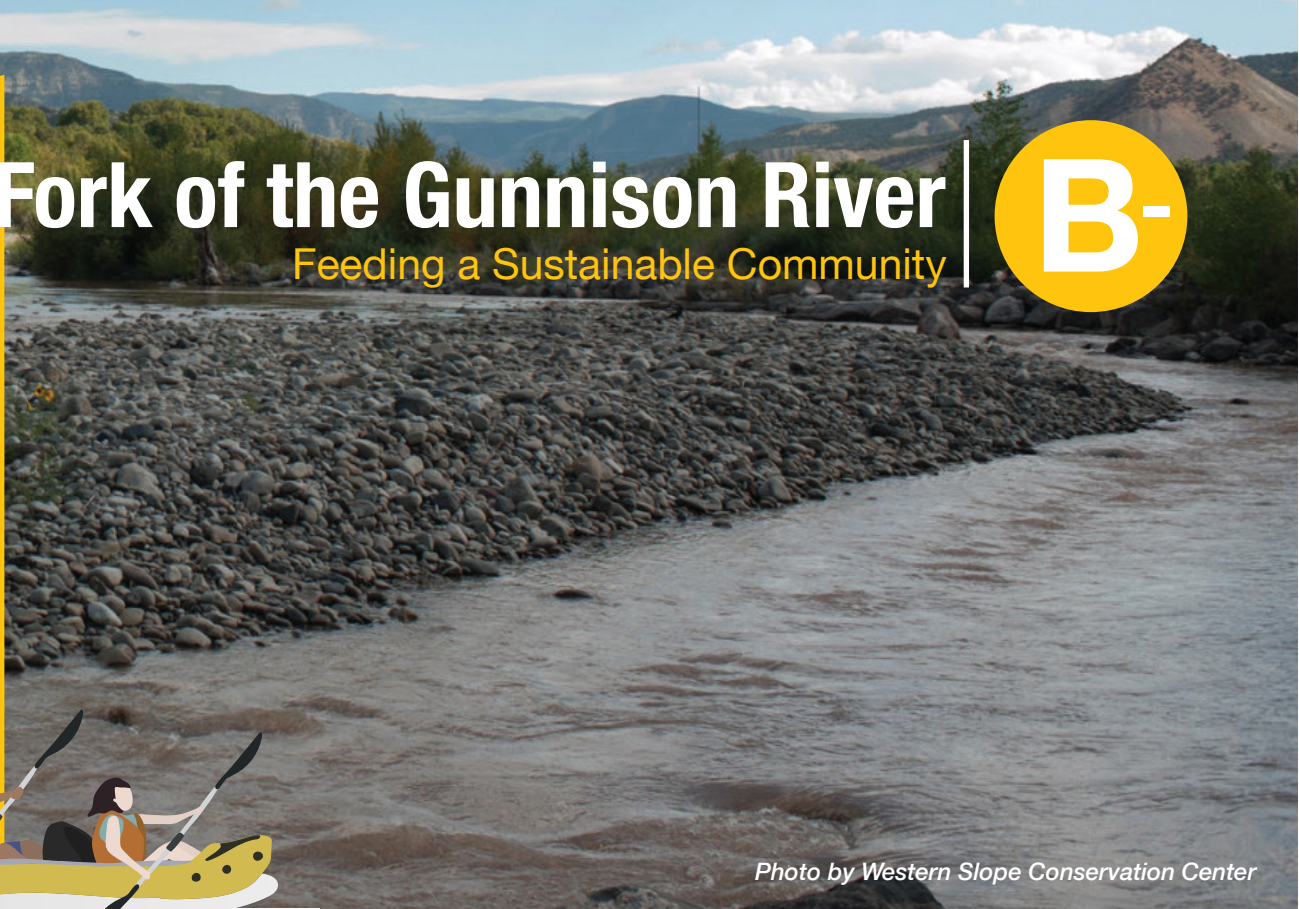


Photo by Western Slope Conservation Center

Nestled between the Elk Mountains and Grand Mesa, this valley is home to a special stretch of river. The North Fork of the Gunnison (known locally as “the North Fork”) is the lifeblood for a community that is increasingly known for its organic fruit orchards, boutique vineyards, quaint towns, skilled artisans, and devoted recreationalists. The North Fork Valley has a long history of coal mining, but the industry has been hit hard by changing energy markets. In response, many in the valley have turned to agriculture, tourism, and recreation for sustainable and diversified solutions to larger economic challenges.

Unfortunately, the bustling and self-sustaining economy of the North Fork Valley and the river that it depends on have come under threat. The specter of oil and gas development industrializing the valley, which sits on one of the nation's largest potential natural gas formations, has become a real and present threat. Thousands of comments have been submitted to the regional Bureau of Land Management in response to oil and gas leasing proposals, urging the agency to protect the North Fork Valley from irresponsible oil and gas development.



“The river makes this valley's food possible. Without clean water from the North Fork, we couldn't grow the fruits and vegetables that give this place its character.”

-Mark Waltermire,  
Thistle Whistle Farms

# THE NORTH FORK OF THE GUNNISON RIVER BREAKDOWN

## Water Flow **C**

Flows in the North Fork have decreased by 18 percent in the last 10 years compared to historic flows.

## Water Quality **C**

There is a relatively high concentration of dissolved salts, metals, and other inorganic materials in the river from various sources including industrial and agricultural activity, but water temperature remains relatively stable. Increased oil and gas development threatens to pollute this water.

## Water Diverted out of Basin **A**

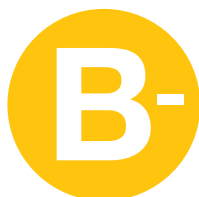
There are no water exports from the North Fork, and very few from the entire Gunnison River Basin. It is important that this remains the case, as the Gunnison River contributes significantly to Colorado River flows.

## Major Dams **B**

The only major dam on the North Fork of the Gunnison is the Paonia Dam that creates the Paonia Reservoir. However, on the mainstem of the Gunnison River are the Blue Mesa, Crystal, and Morrow Point Dams, which supply the state's largest reservoirs and severely impact the river's natural hydrology.

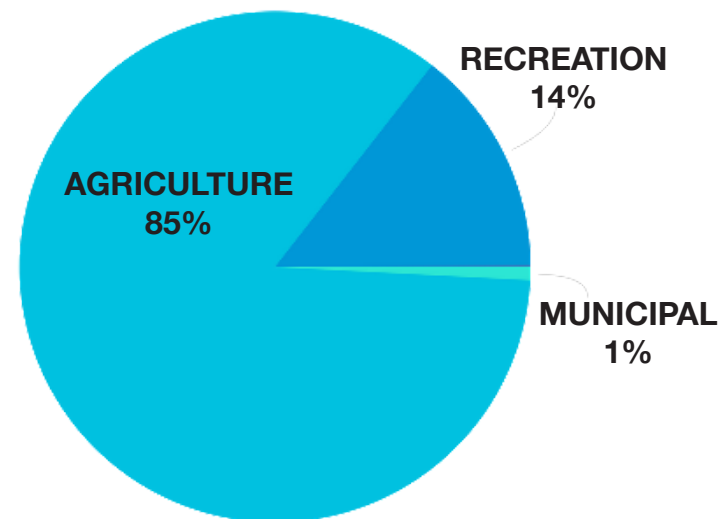
## Other Factors

The North Fork Valley is highly dependent on a healthy North Fork of the Gunnison River for organic agriculture, tourism, and recreation. The BLM is revising the Resource Management Plan for this area, which will heavily influence how public lands and minerals are managed for decades to come.



The North Fork valley has changed considerably over recent years, undergoing a transformation to a community that heavily prioritizes clean water, healthy ecosystems, and sustainable agriculture. While the North Fork needs attention with regards to water quality as well as maintaining healthy flows, overall, the river is in adequate condition.

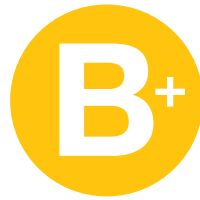
## Gunnison Basin Water Use:



The North Fork is a part of the Gunnison River basin and is responsible for approximately 20 percent of Colorado's overall water use. This basin has a strong agricultural economy that withdraws the majority of the water, while municipal, commercial, and industrial water use is relatively low. The fact that 14.4 percent of the basin's water is allocated for recreation and fisheries means more water is staying in the river for people to enjoy and to boost the local economy.

# North Platte River

A Land Out of Time



The North Platte River basin encompasses all of Jackson County and a small part of Larimer County, but it has the smallest drainage area of Colorado's eight river basins. This area is a land out of time, featuring a high-elevation valley ringed by snow-capped peaks, crisscrossed by numerous streams, and teeming with wildlife. Jackson County's population has remained unchanged over the past century, and the small size of the community means the economy and culture can be significantly affected by relatively small changes in population or industrial activity.

The area has retained its bucolic and rural nature in part because it has remained immune from the projects that divert water to the Front Range or elsewhere out of the basin. This is thanks to a 1945 U.S. Supreme Court decision capping water diversions at their

current levels to ensure the equal apportionment of water from the North Platte. Such unique and strong legal protections prevent the depletion of the North Platte and ensure that the river remains viable long into the future.

Water use in the North Platte Basin is integral to the health of its economy, which is predominantly based on hay and cattle production augmented by a growing outdoor recreation sector. Since 2006, there has been increased oil and gas development in North Park, which has threatened to use significant amounts of water and damage water quality due to the frequency of spills of drilling fluids. Pollution in the North Platte watershed poses risks to both agriculture and aquatic habitat and could also impact outdoor recreation.

## FISHING FOR A SUSTAINABLE COMMUNITY

The North Platte River and its tributaries are outstanding coldwater fisheries, as evidenced by the North Platte's designation as a gold medal river. Locals and tourists alike flock to North Park for some of the best, most beautiful, and bountiful fly fishing in the country. Many of the private ranches in the basin have either developed their own guiding business for fishing and hunting or lease their fishing and hunting access to private clubs or outfitters. This provides supplemental, recreation-based income for the ranching community.



# NORTH PLATTE RIVER BREAKDOWN

## Water Flow

A

Flows on the North Platte in Colorado have not changed significantly over the last 10 years compared to historic trends. In Colorado, the river has been unaffected by dams or diversions, but downstream in Wyoming and Nebraska, the river's flows are significantly altered.

## Water Quality

B

Water quality on the North Platte is relatively good, but there have been some issues with pollution from oil and gas activity as well as low levels of dissolved oxygen (often caused by algae or erosion into the stream), which is critical for fish survival.

## Water Diverted out of Basin

B

The North Platte Basin is unique in that a 1945 Supreme Court decision limits between-basin diversions within any 10-year period. The water that is diverted serves the City of Fort Collins.

## Major Dams

A

There are no major dams on the North Platte River in Colorado. This means the river is free-flowing and unimpeded, providing high-quality aquatic habitat for fish and other species.

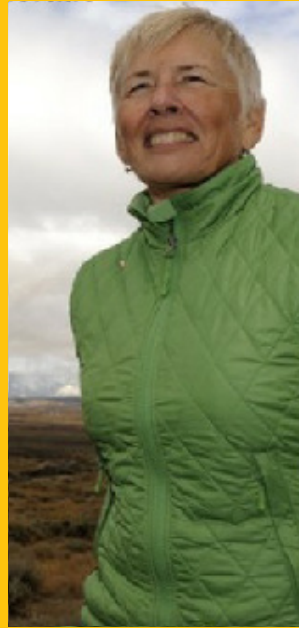
## Other Factors

Unfortunately, there is a distinct lack of data available in this basin with which to make a truly comprehensive assessment of the river. The North Platte has only one streamflow gauge with complete streamflow records and very limited water quality data. The collection of better and more consistent streamflow and water quality data could greatly improve water management in the basin.

**B+**

The North Platte is a unique watershed in Colorado. World-class fishing and a secluded, breathtakingly beautiful scenery characterize the land around the river. Luckily, it has escaped much of the damaging development that sucks our rivers dry and dirties their waters. However, this region must be protected from irresponsible oil and gas development to keep from downgrading the water quality of the river.

“The North Platte River and North Park in general seem like they haven't changed in the past century, which is what makes the area so unique, but oil and gas development is an increasing threat to both water quantity (drilling/fracking use water to extinction) and quality (spills in the North Platte watershed). The amazing landscape and water in North Park deserve protection.”



-Barbara Vasquez, North Park landowner, Cowdrey, Colorado

# The Rio Grande River

The Big River

B

Photo by Ryan Moehring

The Rio Grande is an oasis of recreation and agriculture in south-central Colorado. The headwaters of the Rio Grande provide pristine fishing on the nearly 20-mile stretch between South Fork and Del Norte that is designated gold medal trout-fishing water. More than half of the 7,500 square-mile basin is public land, including Rio Grande National Forest and Great Sand Dunes National Park and Preserve.

The primary driver of the region's economy is agriculture, which requires extensive irrigation because the average precipitation in the San Luis Valley is less than eight inches each year.<sup>6</sup> The region is largely rural, and the largest city is Alamosa with a population of around 10,000. The San Luis Valley area is economically depressed, with some of the highest poverty rates in the state.<sup>7</sup> Given the economic stress and dependence on agriculture, water conservation and responsible management are essential to maintaining the river as well as these communities' viability in the future.

## A PIONEER FOR INNOVATIVE CONSERVATION SOLUTIONS

Because the San Luis Valley is a closed-basin system that has no outlet to other water bodies, water-users must pump groundwater from aquifer storage to irrigate agricultural land. As the largest water user in a region plagued by drought, agriculture could be unsustainably depleting the water supply, but in the Rio Grande basin, that's far from the truth. On a river where water needs and allocated water rights far exceed availability, the Rio Grande Water Conservation District and San Luis Valley water users have responded with an innovative water conservation program. The program charges farmers and ranchers for groundwater, and in turn it uses the funds to pay farmers to fallow parts of their fields, which greatly decreases water demand. This system has been highly successful thus far in replenishing the aquifer that this valley depends on and is a template for groundwater management in other arid communities where agricultural economies are imperiled by drought.

Local groups have also had success with land conservation easements and river restoration projects that help to preserve and protect the river and its surrounding ecosystems. The Rio Grande provides economic and ecological stability across Colorado, New Mexico, Texas, and Mexico. Here in the headwaters, the strides in conservation and management that have been taken at a local level are crucial for the protection of water users both in Colorado and in all the downstream communities that depend on the Rio Grande.



# THE RIO GRANDE RIVER BREAKDOWN

## Water Flow **B**

Flow on the Rio Grande has decreased by 12 percent compared to historic flows on the river.

## Water Quality **B**

Water quality on the Rio Grande is relatively good, but is threatened by potential pollution from old mines as well as increased water temperature due to climate change.

## Water Diverted out of Basin **A**

There are no major diversions from the Rio Grande River - a rare occurrence in Colorado - which contributes positively to the overall health of the river.

## Major Dams **B**

The Rio Grande River has one major dam in Colorado that creates the Rio Grande Reservoir, which supplies municipal water to the area.

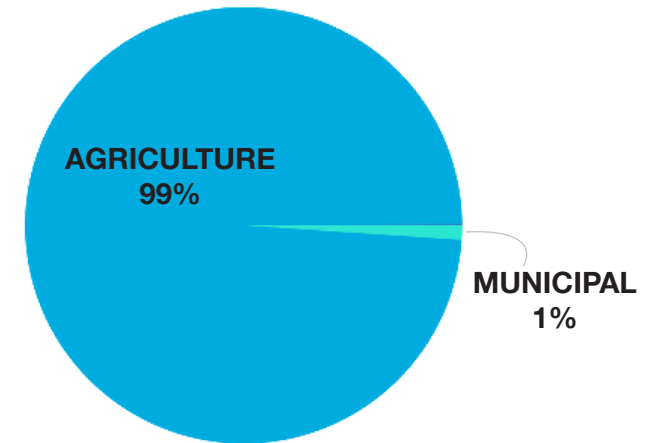
## Other Factors

Meeting obligations to send water downstream to New Mexico and other states, as well as maintaining a healthy and resilient watershed, put additional pressures on the need to conserve this river.

**B**

Overall, the Rio Grande River is in good health. Thanks to local action to lower the agricultural water demand and the hard work of local organizations to restore sections of the river and conserve the surrounding lands, the Rio Grande is a model for groundwater conservation efforts. This activity must continue to keep the river in decent condition.

# Rio Grande Basin Water Use:



The proportion of agricultural water use in the Rio Grande basin is the highest in the state at 99 percent, but farmers and ranchers are taking it upon themselves to reduce their impact on groundwater resources and minimize the depletion of the Rio Grande. The basin is responsible for 11.2 percent of the state's agricultural water use. Industry water use is virtually non-existent in the area, and municipal and commercial water use is low due to the lack of urban areas. However, the river is bound by compact to send water downstream to New Mexico, so the water conservation and efficiency programs are important to continue.



“

As a 6th generation San Luis Valley Native, the Rio Grande has been an integral part of our history, ecosystem, watershed, livelihoods, and, of course, existence. The sustainability of this most precious natural resource depends on us being proper stewards. Our children and our children's children will thank us. ”

-Anna Lee Vargas, Project Coordinator, Conejos Clean Water

# The South Platte

## A River in High Demand



The South Platte River basin is home to the majority of the state's population, which is projected to nearly double from 3.5 million people to over 6 million by 2050.<sup>8</sup> The basin also holds the greatest concentration of irrigated agricultural lands in Colorado, the highest consumption of industrial-use water, and the highest municipal and commercial water use. Thus, demand for water from the South Platte River is extremely high.

Under its natural hydrology, the South Platte River did not flow year round. Now, due to such high demand, the South Platte's water supply is heavily supplemented by diversions from the Colorado River basin and the Arkansas and Laramie Rivers. This has resulted in flows on the South Platte actually increasing by 49 percent compared to historic flows.

About a third of the area of the South Platte Basin is public lands, including national forests, state parks, and open spaces. Stretches of gold medal fishing combined with excellent public access to trails and other recreation opportunities are a reminder that this basin is important environmentally and recreationally, not just economically.

And yet, water quality issues plague the entire river. Increase in wildfire frequency due to climate change causes sedimentation in the river, which threatens fish populations. Warmer water temperatures, high levels of nitrogen and phosphorus from metropolitan areas, and legacy mines at the headwaters that may leak toxic chemicals are all problematic and may destabilize aquatic life and impact drinking water.



### DOING MORE WITH LESS

The key to solving the water woes of the South Platte River is urban conservation and the avoidance of any new large diversion projects that would bring more water into the basin from the Western Slope. Despite the projected population growth and increased water demands, water use doesn't necessarily need to increase. By increasing water conservation and efficiency, we can minimize the need to import additional water into the basin and have a sustainable water supply.



Photo by Kent Kenouse



# THE SOUTH PLATTE RIVER BREAKDOWN

## Water Flow

**B**

Flows on the South Platte are stable and have increased significantly compared to historic flows due to the massive diversions from other basins that are imported to sustain the high municipal, commercial, and agricultural water demands from the river.

## Water Quality

**D**

The South Platte has struggled with water quality issues, including nutrients (nitrogen and phosphorus), temperature increase, legacy mining pollution, and sedimentation from wildfires. As prime fishing grounds and an important water source for millions of people, this river should be prioritized for restoration projects to improve water quality.

## Water Diverted out of Basin

**B**

Imports from other rivers far exceed water diverted out of the South Platte basin. While it may seem like it's a good thing that little to no water is leaving the basin, the South Platte requires significant water infrastructure and human interference to reliably provide water to the people, farms, ranches, and industry of the region, and these imports harm other river basins.

## Major Dams

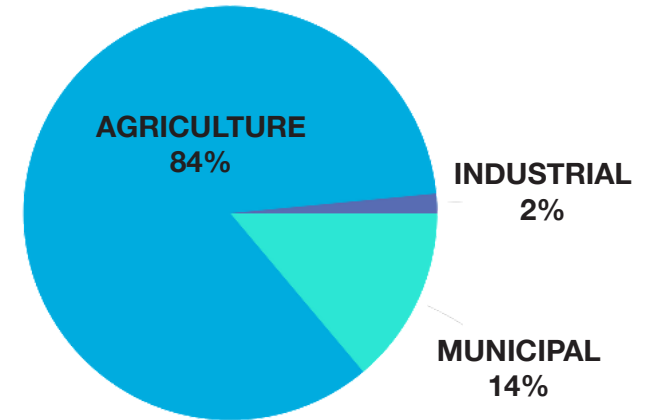
**D**

There are seven dams along the South Platte that create reservoirs. While some amount of infrastructure is necessary in order to serve the population of the basin, this many successive dams negatively impacts the natural hydrology and ecology of the river.

## Other Factors

With so many people living in the South Platte basin, and the amount of water that is diverted to serve them, this river provides us with a huge opportunity to increase water conservation in order to protect the river in Denver's backyard as well as rivers across Colorado.

# South Platte Basin Water Use:



Water use in the South Platte basin is by far the highest of any other basin in the state. Agriculture consumes most of the South Platte's supply, while it also serves the municipal and commercial demands of Denver, Boulder, and Fort Collins. We are at a critical juncture for the future of the South Platte, with the majority of the state's population living in the basin and projected population growth. If we do not consume water more efficiently, the condition of the South Platte and the viability of our communities will be seriously jeopardized.



“The South Platte is an important natural resource that we must be conscientious of and preserve. It is important that we care for and respect the South Platte River as the primary source of clean drinking water for hundreds of thousands of Coloradans.”

-Luciana Quintero, Lowry, Colorado



The South Platte is a unique river to assess, given the high level of use in all sectors, the significant imports from other basins, and the struggles with water quality. While it faces problems associated with population growth, the South Platte is still a valuable environmental asset to the state as well as a source of economic vitality.

# The Yampa River

One of the Last Wild Rivers



The Yampa River is the last major free-flowing tributary to the Colorado River. It's "A" grade makes it stand out as a singularly unique and healthy river system, but that's not to say it doesn't need our attention. Due to the Yampa's undeveloped and free-flowing nature, it's more important than ever that we strive to protect and preserve it.

The Yampa flows through some of the most iconic and wild country in Colorado, originating in the Flat Tops Wilderness in northwest Colorado and flowing west across sagebrush prairie, sandstone canyons, and alluvial valleys before converging with the Green River just downstream of Echo Park within Dinosaur National Monument. The region has a rich agricultural heritage, as livestock and grazing are the primary land uses in the basin. The basin also boasts a strong tourist economy that includes skiing, rafting, kayaking, fishing, and hunting.

## FIGHTING THREATS TO A HEALTHY RIVER

Compared to other rivers in the state, the Yampa has been tapped for diversion much more recently.<sup>9</sup> As rivers like the Colorado River continue to be exhausted from increasing demand, water users across the state have long eyed the Yampa as a source to meet growing municipal, agricultural, and industrial water demands. The threat of water getting diverted out of the Yampa basin is cause for alarm, but it is also an opportunity to vocalize strong support for increased protections.

Also of concern in the basin is oil and gas development. In the recent past, large-scale water storage projects have been proposed as a way to facilitate commercial oil shale and natural gas development. These types of projects would significantly impact the hydrology and untapped nature of this river as well as threaten the availability of water for traditional uses like farmers, ranchers, and recreation interests. Energy development not only consumes water but also brings the threat of pollution from spills, runoff, and other accidents.

The Yampa River is a powerful source of vitality for northwest Colorado, but its status as the state's healthiest river and one of our only "wild" rivers will only remain as long as there are people willing to protect it.

# THE YAMPA RIVER BREAKDOWN

## Water Flow **A**

Flows on the Yampa River have not decreased over time because so little water is exported from the river or trapped in storage.

## Water Quality **A**

The Yampa enjoys good water quality, but as the average water temperature gradually increases due to climate change, native aquatic species are increasingly threatened.

## Water Diverted out of Basin **A**

Very little water is diverted from the Yampa River basin to other parts of the state, allowing flows to remain at their natural levels and providing an ample water source for local needs.

## Major Dams **B**

Proposed new storage projects and expansions threaten this free-flowing river. The Stagecoach Reservoir is the primary municipal water source in the basin. However, unlike other dams and storage projects in the state, Stagecoach does not significantly impact downstream flows.

## Other Factors

This river flows through a diverse, historic, and ecologically-rich landscape. The Yampa is critical for the region's economic health through recreation, industry, and agriculture.



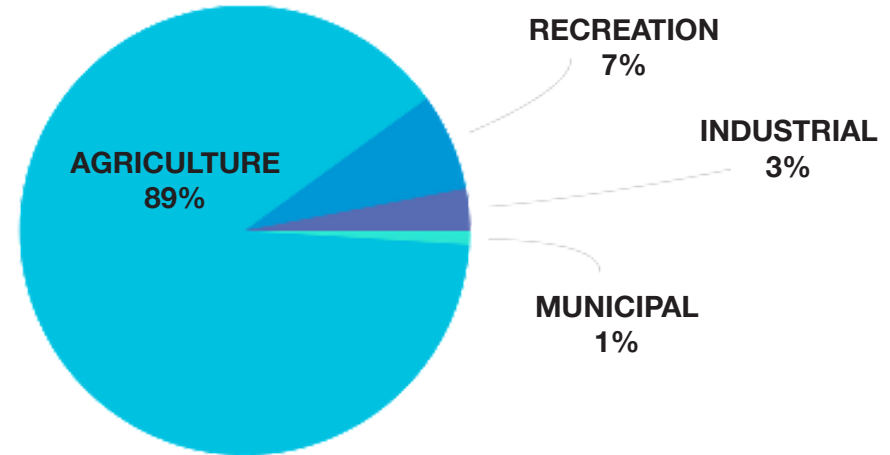
Due to the near-pristine condition of the Yampa, this river must be held in the highest regard for conservation efforts. It is imperative that we protect it from threats of water diversions, over-appropriation, and oil and gas development.



“With no mainstem reservoirs impeding its flow, and recreational opportunities from its headwaters in the Flat Tops to its confluence in Dinosaur National Monument, the Yampa River has numerous remote and wild recreational opportunities that make it worth enjoying and worth protecting.”

*-Charlie Preston-Townsend,  
Board President, Friends of  
the Yampa*

## Yampa Basin Water Use:



Due to the small population size in the basin, municipal and commercial water use is relatively low. The majority of water consumption from the Yampa goes toward agricultural producers in the basin, while a significant amount is used to support recreation and fisheries in the basin. Industrial water use is higher in the Yampa basin than other parts of Colorado due to the presence of two coal-fired power plants in the Yampa Valley.

# WHAT YOU CAN DO

We must work together to prioritize healthy rivers and clean drinking water, while balancing the needs of agriculture, cities and towns, and recreation. Luckily, there are many ways we can make a difference for our rivers. By reading this report, you've already made a difference. The first step to protecting these rivers and landscapes is being aware of the challenges they face.



## Flexible Water Use Between Cities and Agriculture

By allowing people to share and lease water rights, we can avoid "buy and dry." This is when a farmer sells a water right, usually to a water provider for a city or town, and the farmland that was being irrigated dries up.

## Tools to Keep Water in the River

To protect the environment, native fish and wildlife, and recreation opportunities, we need to support policies such as instream flow water rights and recreational in-channel diversions. These tools help protect stretches of rivers and streams on a local level.



## Implement Colorado's Water Plan

The plan sets actionable goals to help meet current and future water needs. These goals include a water conservation target for cities and towns and making stream management plans for priority waterways. This plan will help us maintain Colorado's environment, economy, agriculture, and communities.

## Municipal Water Conservation

Conserving more water in our cities, towns, and suburbs is one of the easiest and most effective ways to protect our rivers. This can include: conserving and recycling more water; using water-efficient fixtures, improving infrastructure so water isn't lost through leaky pipes, and landscaping to use less water.



## Resilient Landscapes

Public land agencies like the Bureau of Land Management or U.S. Forest Service often take public input into land management planning. These processes can protect rivers through options such as Wild and Scenic Rivers or Areas of Critical Environmental Concern. Recreation management proposals can also affect our rivers and their management.

## Avoid Large New Trans-Mountain Diversions

Building costly infrastructure to pump water over the mountains is an outdated way to meet our water needs, and it harms West Slope rivers. By focusing on water conservation, we can ensure there is enough water to go around.



# APPROACH, ENDNOTES, & SOURCES

The grades for each river were based on four primary factors: flow, water diverted out of basin, water quality, and major dams. We collected data, conducted analyses, and consulted stakeholders to ensure that our conclusions are well-informed and accurate. Each of the four factors was assigned a score of 1-5 based on state standards, professional assessment, and comparisons to the other rivers. The scores were then averaged to determine the overall grade on this scale: 1-1.5=F; 1.6-2.5=D; 2.6-3.5=C; 3.6-4.5=B; and 4.6-5 =A. Plus/minus grades were assigned when appropriate. Other factors such as water use, recreation, fisheries, energy production, pollution, and surrounding landscape were taken into account but not factored into the overall grade. Details about each metric and specific methodology can be found at [conservationco.org/riversreportcardmethods](http://conservationco.org/riversreportcardmethods).

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**OUR WATER IS**



# OUR WAY OF LIFE

**Drought is already impacting communities across Colorado, and as climate change worsens, these impacts will only intensify. The Twin Lakes Reservoir, near Leadville, CO, almost dried up completely in the exceptionally dry summer of 2018.**

*Photo by Lisa Pool*



# Conservation Colorado

PHONE 303.333.7846 WEB [ConservationCO.org](http://ConservationCO.org)

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*Front cover photo by John Fielder*