

The background of the cover is a photograph of a river canyon. The rock walls are layered and eroded, showing various shades of brown and tan. The water is a deep, dark green. In the lower left, a small red boat with a person is visible on the water. The sky is overcast with grey clouds.

RIVER BASINS  
*of the*  
AMERICAN WEST

*A High Country News Reader*

EDITED BY CHAR MILLER

**River Basins  
of the American West**  
*A HIGH COUNTRY NEWS READER*  
*Edited by Char Miller*

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# Continental Divides

*Char Miller*

When flying over the American West at thirty-five thousand feet, you begin to understand why John Wesley Powell argued that the region's watersheds have had a profound impact on its landscapes, natural and human. "In a group of mountains a small river has its source," he wrote in his landmark *Report on the Lands in the Arid Region of the United States* (1876). "A dozen or a score of creeks unite to form the trunk. The creeks higher up divide into brooks. All these streams combined form the drainage system of the hydrographic basin, a unit of country well defined in nature, for it is bounded above and on each side by heights of land that rise as crests to part the waters. Thus hydraulic basin is segregated by hydraulic basin by nature herself, and the landmarks are practically perpetual." (*Report*, page 113)

That pattern, which Powell, the first head of the U. S. Geological Survey, observed with boots to ground we bear witness to while winging from St. Louis to Denver, San Antonio to Los Angeles, or Seattle to Salt Lake City (or any point in between): the West's iconic mountains—the Rockies and Sierra, Wasatch and Cascades—like its less famous and smaller ranges, over the millennia have shed billions of gallons of water that have carved through hard rock and soft soil to create its remarkable watercourses.

These rivers' names are as storied as their sources are renowned. The Yellowstone River, which rises up out of the Absaroka Range in northwestern Wyoming, flows north through the eponymous national park and then turns eastward: it is joined by the Bighorn, Tongue, and Powder before merging with the Missouri, serving as its principal upper tributary. Another major tributary, the slow-moving Platte, links with the wide Missouri near Plattsmouth, Nebraska. In time their combined flow will surge into the Mississippi, emptying into the Gulf of Mexico south of New Orleans, thousands of miles from their manifold sources within the central and northern Rockies.

Another Rockies-based river is the 1,885-mile-long Rio Grande: at the base of southern Colorado's Canaby Mountain, a series of streams converge, cut south through the San Luis Valley, cross into New Mexico, running past

Albuquerque and Las Cruces, swinging south and east at El Paso, Texas. There, the river starts to delineate the 1,254-mile international border between Mexico and the United States and picks up tributary waters from the Rio Conchos on its south and later from the Pecos on the north; most years its sluggish movement has just enough energy to push into the Gulf of Mexico at Boca Chica, east of Brownsville.

The same cannot be said for the Colorado River: it rarely reaches its historic mouth on the Gulf of California. Originating out of La Poudre Pass Lake in the northern Rockies, it carries a staggering volume of water as it angles west and south into Utah, Arizona, and California, where its erosive force has created a stunning series of canyons, grand and small. A network of dams and reservoirs along its upper and lower reaches now controls the Colorado's 1,450-mile run, however, allowing agricultural interests and urban water purveyors to pump out its waters and diminish its flow; even its last major tributary, the Gila, which draws on a watershed that includes the San Pedro (whose headwaters lie in northern Mexico), does little to propel the Colorado: the once-thunderous river slows to a trickle as it enters Mexico, seeping into its desiccated delta.

The Columbia suffers no such fate despite its legendary dam structures. Its headwaters are in southeastern British Columbia and its 1,243-mile course begins in a northwesterly direction, sweeps almost one hundred and eighty degrees around the Selkirk Mountains, heading south along the western slope of the Columbia Mountains; joined by the Kootenay, Canoe, and Pend Orielle (the latter's tributaries include Montana's Clark Fork and Flathead rivers), it enters Washington State on its race to the Pacific. The Columbia's expansive drainage within the United States covers more than 225,000 square miles, sprawls across seven states, and absorbs the discharge from, among many others, the Crab, the Snake and the Yakima, the John Day, Deschutes, and Willamette, before surging into the ocean near Astoria, Oregon.

Smaller systems abound throughout the West. The heavy snow that can create white-out conditions in the Cascades melts come spring to form the 263-mile-long Klamath, which flows south and west from its Oregon headwaters into California, picking up additional water from the

Williamson, Scott, Salmon, and Trinity. Another river with its origins in the Cascades, the 447-mile-long Sacramento, gains its initial impulse from the Mt. Shasta drainage district, runs straight south through the northern stretch of California's Central Valley, and near Antioch meets the San Joaquin, which springs from Sierran snowmelt; their fertile delta has established one of the west coast's largest estuaries. Other more (and less) biologically rich rivers pulse down from the Sierras, Wasatch, and other interior ranges, feeding lakes wet and dry, among them California's Owens, Mono, and Soda; Utah's Great Salt and Bonneville basins; and Nevada's innumerable *playa*. Whether seen from the stratosphere or from a more down-to-earth vista, it is clear how much water has sculpted the topographical contours of the American West.

That does not mean that the region is uniformly wet, a point Powell hammered home in his report on western aridity. The lack of precipitation, he asserted, would offer the most rigorous challenges to European-Americans expecting to plant communities within this land of little rain. With the exception of migrants who ended up in the Columbia and Central California watersheds, those pressing west in the late-nineteenth century and whose experience lay in the humid east were in for a shock, a fraught situation that led Powell to an unusual conclusion: the only settlement pattern that made sense was one framed inside the region's many watersheds. It would be folly, he cautioned, to presume that what had worked in well-watered climes would work beyond the Ninety-eighth meridian; this wet-dry boundary running north-south along the Great Plains instead must mark the western limit of the rigidly rectangular structure of private property that surveyors had laid down across the trans-Appalachian public domain. Arid country could not sustain the classic homesteads situated on one-hundred-sixty-acre sections in Ohio, Minnesota, or Arkansas that could ignore environmental realities because water there was relatively plentiful.

Such ignorance would be deadly in the Utah, Arizona, or New Mexico Territories. In these bone-dry landscapes, communities must adapt themselves to hydraulic realities; individual land-ownership, social development, and political organization must be coterminous with local

watersheds. Because each such district “is a commonwealth by itself” Powell asserted, “there is a body of interdependent and unified interests and values, all collected in one hydraulic basin, and all segregated by well-defined boundary lines from the rest of the world.” United by “common interests, common rights, and common duties,” the residents “would work together for common purposes.” Should the “entire arid region be organized into natural hydrographic districts,” out of its environmental constraints would emerge a political virtue: democracy would be reborn. (*Report*, page 114)

Few paid heed to his innovative resolution or to the warning it contained. Survey chains were laid down across the Great Plains, up and over mountain ranges, through valleys and deserts, stopping only when they reached the edge of the sea. However mathematically logical this subdivisional impulse may have been, it has been responsible—as Powell predicted—for the subsequent and incessant conflicts over the flow, distribution, and control of the water that has been so central to the history of the modern West. It remains key as well to understanding many of the region’s economic dilemmas, environmental conundrums, political dislocations, and social inequities. These disruptions and difficulties are the very subject of *River Basins of the American West*, which, as its title suggests, adopts as its organizing structure Powell’s principled argument for how best to understand this contentious terrain.

Everywhere the fights have been intense. For more than a century westerners have resorted to bribery, intimidation, and violence; made ready use of the local, state, and federal judiciary; lobbied in legislative assemblies; formed special-interest committees and grassroots organizations to demand the redress they felt was their due. Whatever the chosen strategy, however complex the end results, regardless of place or time, few have been fully satisfied with the results. Yet as it captures some of the most recent squabbles, this collection of articles that first appeared in *High Country News*, the West’s environmental journal of record, also reflects some of the out-of-the-box thinking that has begun to resolve some of the region’s most enduring and turbulent water fights.

The struggles over the Colorado are a case in point. From the delta to its source, the river bears the marks of a heavy human hand. Dams and diversions have weakened its pulsing energy; massive structures such as the Hoover and Glen Canyon dams have trapped sediment that used to wash into the Gulf of California and have altered the river's currents and temperature—damaging ecosystems, compromising aquatic life, and challenging the viability of some communities along its course. To resolve any of these complicated upstream-downstream issues requires cooperation between Mexico and the United States; internal policy coordination at the federal and state levels in both countries; and a consensus developed among affected areas, rural and urban, whose interests often seem at odds with one another.

Despite this welter of difference and disagreement, there has been some positive movement: beginning in the Clinton administration and continuing through the Bush years, the Department of the Interior has interceded with states battling over the apportionment of the Colorado's waters, a negotiation process that has resulted in California drawing less from the river and committing to increased conservation measures. Some of the technological fixes have been straightforward: canals have been lined with concrete to reduce seepage, a simple solution that has had the unanticipated result of stopping up leaks that Mexican farmers in northern Baja California had depended on to irrigate their fields. And conservation initiatives will be hard pressed to solve the most recent tension—booming population growth along the borderlands is being confronted with an intensifying drought that will have a deleterious impact on life in Los Angeles, Mexicali, and Phoenix.

The situation in Albuquerque, El Paso and Ciudad Juarez, Los Dos Laredos, and Brownsville is no less precarious. That's because the Rio Grande/Rio Bravo del Norte is also affected by declining snowmelt in the Rockies that must be apportioned among a series of competitive users. Capturing these shrinking waters are dams and reservoirs each nation has constructed; how much they hold and release is determined by international treaty that is observed more often in the breach. Ignored

often are the endangered species—such as the Rio Grande silvery minnow—whose life cycles depend on the river functioning as a river. And then there are issues of water quality: metal-laden tailings have been flushed into one of its northern tributaries, the Red, devastating the health of those whose drinking waters came from its toxic stew; farther downstream, urban effluent and agricultural runoff create an unsavory mix. Meanwhile, the twined river-border cities are scrambling to enact water-efficiency regulations; wetlands-restoration activists are seeking legal redress; social-justice advocates are demanding better sanitation and housing for an impoverished citizenry. Imagining the borderlands as its own community may be the first step to constructing the much-needed cross-border coalitions—and a healthier river and body politic—but it is also a monumentally difficult one.

So the Roman Catholic bishops of British Columbia and the Pacific Northwest states discovered when they anointed the Columbia River a sacramental commons. They hoped that by injecting a spiritual dimension into the decades-long dispute over the relative value of fish, farms, dams that they might help broker a bit of earthly peace. Naturally, they stirred up a hornets' nest, although they were not the first to get stung: the Columbia watershed has been beset with contending forces unable to compromise. That is because the dams that so disrupt salmon's migratory patterns and native peoples' lives are keystone features in the wider region's agricultural development, urban growth, and hydropower production. These conflicts of interest only intensify during periodic droughts—the Cascades, like the Rockies, are experiencing diminished precipitation—and have led to a spike in lawsuits so that one petitioner can secure a perceived advantage over another. Still, there is hope embedded within the bishops' pastoral letter, and the emergence of such groups as the Deschutes River Conservancy, whose board of directors reflects the diversity of people who need and use that Columbian tributary. Creating incentives to produce water-saving actions on farms has freed up water for salmon, an incremental solution that if it successfully reconciles the seemingly irreconcilable, may prove a miracle cure.

More miraculous still would be a plan to smooth out the tensions that for decades have roiled the Klamath basin and Missouri's vast watershed. Here too the tensions revolve around dams, irrigation, and endangered species; here too the oft-cross-cutting purposes of governmental agencies, tribal authorities, irrigation districts, and grassroots entities have strained their collective capacity to develop a working solution to what all concede is a tremendously knotty set of problems. To secure a more hopeful future, one participant in the Klamath negotiations acknowledged, "you gotta let go of some of the past."

Yet one path towards that future might well draw on an older argument. What Dan Luecke, a National Wildlife Federation consultant, said of the Platte holds true for a raft of other western rivers: "We're trying to invent a way of governing ourselves on a different political basis, and that political basis is a watershed." John Wesley Powell could not have said it any better.

Indeed, a Powellian calculation figures in the efforts of those dedicated to restoring the West's many brooks, creeks, and streams. Their efforts to regenerate native fish population in the San Juan River; clean up the channelized Alamosa; revegetate the Clark Fork; rebuild riparian habitat along the Weminuche; undam the Mokelumne; and reforest Seattle's Cedar River watershed are akin to the Hoopa people's campaign to bring back salmon on the Trinity River or to those fighting to reintroduce them to the San Joaquin or Yakima—all want to resuscitate flat-lined western waterways.

Whatever the character of these diverse organizations, the very fact of their existence is striking: each is devoted to a precise bioregion, with a tight focus on a particular place that confirms how vital river basins are to all flora and fauna, not least to the human communities from which these dedicated groups spring. By their actions, which embody the confluence of geographic orientation and communal action, they are laying down the foundation for the watershed commonwealths that John Wesley Powell believed would be the salvation of the American West.