

Deadlines Matter & the Two-Year Clock Is Ticking

The Fate of the Colorado River & the Future of Ag

The Colorado River system—lifeline to 40 million people and over 4 million irrigated acres—is hurtling toward a tipping point. With the current operating rules expiring in 2026, hydrology worsening, and state negotiations faltering, the Basin faces an uncomfortable truth: the old frameworks bought us time, but not enough. And with this year’s anemic runoff, time is exactly what we’re running out of.

1. The 2007 Interim Guidelines: A Temporary Truce

The 2007 Interim Guidelines were a well-intentioned attempt to coordinate operations between Lake Powell and Lake Mead during increasingly variable flows. They tied reservoir operations to storage tiers, created the ICS (Intentionally Created Surplus) system in the Lower Basin, and set the stage for shortage sharing below Hoover Dam. But the Guidelines were always a stopgap—designed to sunset in 2026—and they were not built for the 21st-century aridification we’re now living through. [3][4][13][14]

2. The 2019 Drought Contingency Plans (DCPs): Buying Time

By 2019, back-to-back low-flow years had made clear that the Guidelines weren’t enough. The DCPs added emergency stabilization measures:

- Upper Basin DCP focused on protecting Lake Powell’s elevation (target: 3,525’) and authorized releases from upstream reservoirs.
- Lower Basin DCP required deeper cutbacks from Arizona, California, and Nevada at declining Mead elevations, layered on top of the 2007 provisions.

Congress blessed the deal. But even then, it was clear this was duct tape over structural cracks. The DCPs didn’t resolve the fundamental overuse problem—particularly in the Lower Basin. [5][6][18][26][27]

3. The 2023–2024 SEIS & Interior’s Temporary Fixes

Facing near-record lows in Powell and Mead, Interior stepped in again, issuing a Supplemental Environmental Impact Statement (SEIS) to adjust operations through 2026. That SEIS aimed to conserve up to 3 million acre-feet through temporary, compensated reductions, mostly via Lower Basin voluntary agreements. But these are Band-Aids, not surgery. [7]

4. Negotiation Status: Not Well

States are now supposed to be negotiating new post-2026 operating rules. But so far, what’s emerged are competing white papers, media campaigns, and deep mistrust. Key fault lines:

- Upper vs. Lower Basin: The Lower Basin acknowledges the need for big cuts—but wants

them shared. The Upper Basin argues it's already living within its means and shouldn't bear more reductions.

- California vs. Arizona: Still haunted by the junior-priority sword, Arizona is wary of being left holding the bag—again.

- Tribes: Still left out, despite legal entitlements to a significant share of the system and growing calls for equity and inclusion.

- Mexico: Vulnerable to reduced deliveries, even as climate change batters the delta and border-region farming.

Meanwhile, hydrology isn't waiting for consensus. Snowpack this year peaked well below normal, runoff into Powell is forecast around 2.9 MAF—far short of what's needed to meet demands and keep the system functional. [2][8][9][10][11][12][28][29]

5. Agriculture: Squarely in the Crosshairs

Ag uses ~75–80% of the Basin's water, and it's the only sector with large volumes available for quick conservation. But the farms and irrigation districts that helped build the American West are now on the front lines of forced fallowing, reduced reliability, and groundwater drawdowns. Without structural reforms and long-term incentives, the future of Basin agriculture is increasingly uncertain. [2][20][22]

6. The Two-Year Clock

Interior is aiming to release a draft EIS with new post-2026 operating alternatives by late 2025, with a final Record of Decision due in 2026. If the states can't reach agreement—soon—the feds will move ahead with their own plan. That's not just bureaucratic fallback; it's an open invitation to litigation, uncertainty, and potentially chaotic implementation. [2][8][9][12][16][17]

Conclusion: The Math Doesn't Lie

We are staring down a structural deficit of 2–4 million acre-feet per year, depending on the scenario. That shortfall won't be solved by wishful thinking or voluntary measures alone. Without a durable, basin-wide solution that includes shared sacrifice, tribal integration, and compensated conservation, the river's fate—and that of Western agriculture—will be decided by crisis, not consensus. [1][2][9][12]

James Eklund & Hannah Mink, Taft/ Sherman & Howard, Norse Sky Ranch

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SAVING THE COLORADO RIVER

HOW DEMAND MANAGEMENT CAN SAVE THE COLORADO RIVER

by James Eklund, Eklund Hanlon, LLC (Denver, CO)

Introduction

THE CHALLENGE & THE OPPORTUNITY

In 1887, after a week at sea, my great-great grandmother Mary Gunderson led her blind husband, Ole, down the gangplank into New York City. Ole was the victim of a mining accident only days before their scheduled departure for America. The economy in Norway had collapsed and the couple sought a brighter future for their two young sons. The family made its way to the new (then twelve-years-old) state of Colorado to homestead on a tributary to the Grand River. The federal government had recently removed the indigenous Ute peoples from the land and opened it to homesteading. The river that dominated this landscape has carried many names, among them Rio del Tizon, the Grand River, and the Colorado River. For eleven years, 1873-1883, the river’s performance was below what once was considered average (*i.e.* the average flow of the river 1906-1995). (Woodhouse, 2006). When the Gundersons arrived, the flows had returned to average and were about to enter a wet period that would form the backdrop for the consequential first round of modern management negotiations. (Woodhouse, 2006).

The river that carved the Grand Canyon now shaped new economies — economies that quickly grew too big to fail. Westerners sought ways to control and harness the river while confronting legal and hydrologic uncertainty. In 1922, the seven sovereign Basin States achieved a form of legal certainty through an interstate compact expressly consented to by Congress. The Colorado River Compact (Compact) was the first interstate compact apportioning water use in the nation’s history. The Compact divided the river basin in two, apportioning Colorado River system water use between the Upper Basin and the Lower Basin. (The Upper Basin includes: Colorado, New Mexico, Utah and Wyoming; while the Lower Basin includes: Arizona, California and Nevada) The basin states and the federal government adopted agreements, laws, policies, and practices based on their understanding of the river’s historic performance. Taken together, these instruments constitute what is now known as the “Law of the River.” In 1935, a measure of hydrologic certainty was achieved, for the Lower Basin, with the filling of Lake Mead behind Hoover Dam. If the compact negotiators had been correct in their assumption that Colorado River flows would remain stationary, this article would end here. You, dear reader, are not so fortunate.

Anthropomorphic climate change has fundamentally shifted Colorado River hydrology and the foundation upon which the Law of the River was built. The once average annual river inflows of 18 million acre-feet were experienced and assumed by interstate negotiators — while we now only see 12.5 million acre-feet. In addition, more carbon in our atmosphere is producing warmer temperatures. Consequently, not only are we receiving less precipitation, but more of what we do receive falls in the form of rain instead of snow.

Moreover, snowpack behavior, once considered somewhat predictable and reliable, is now dramatically underperforming. In the 2020 water year, the Upper Basin saw above average snowpack (114%) misbehave to such an extent that it produced a mere 55% of average runoff. (Milly, 2020). These trends can be expected to continue. (Plucinski, 2019). Reasons for this are, firstly, the “aridification” of the Colorado River Basin, where temperature has risen and is rising such that sublimation occurs at higher rates and liquid water fails to occur. The second reason is the “spongeification” of the Colorado River Plateau whereby dry soils and depleted groundwater aquifers soak up the runoff that does materialize.

Nevertheless, the demands placed and the economies reliant on the Colorado River are still too big to fail. Our challenge, therefore, is to shift the Law of the River to accommodate the change in hydrology and encourage practices that can help save the river. Too small a shift risks failing to adequately address the challenge. A larger — perhaps necessary — response may upset the carefully crafted agreements that sovereigns and stakeholders throughout the basin have labored to reach. Unfortunately, the latest data and analysis shows we must prepare for river flows reduced by climate change.

Readying the Colorado River system and the 40 million people reliant on the river in seven states, two countries, and numerous American Indian Tribes requires a rethinking of the fundamental terms of the Law of the River. The picture can seem bleak and depressing — but take heart! These challenges also represent excellent opportunities to develop more reliable and sustainable Colorado River management. We *can* manage our way out of this problem while addressing climate change, thus saving the Colorado River for future generations. Demand management is a necessary management tool that we should be wielding with greater urgency.

Demand Management

Homestead

1922 Interstate Compact

“Law of the River”

Lake Mead

Flow Change

Snowpack Change

Change Accommodation

Demand Management

Climate Change, Declining Agriculture, and the Law of the River

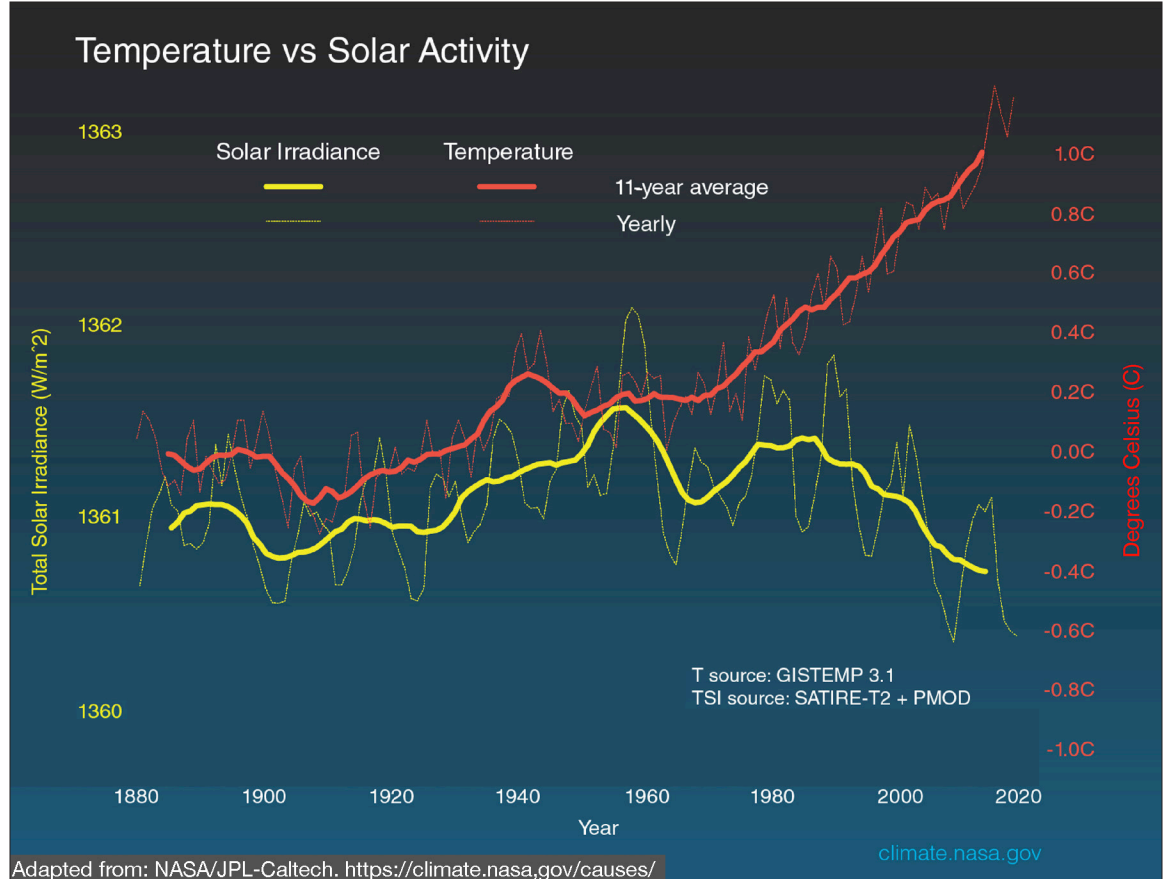
Demand Management

Warming Temperatures

Precipitation Change

The Effects of Climate Change on the Colorado River

Anthropomorphic climate change is consequential for Colorado River management and presents an existential threat to communities, economies, and environments in the basin. More carbon in our atmosphere produces warmer temperatures. (NASA, 2011). Since the Gundersons homesteaded, average global temperatures have risen 1.4 degrees Fahrenheit. (NASA, 2011).

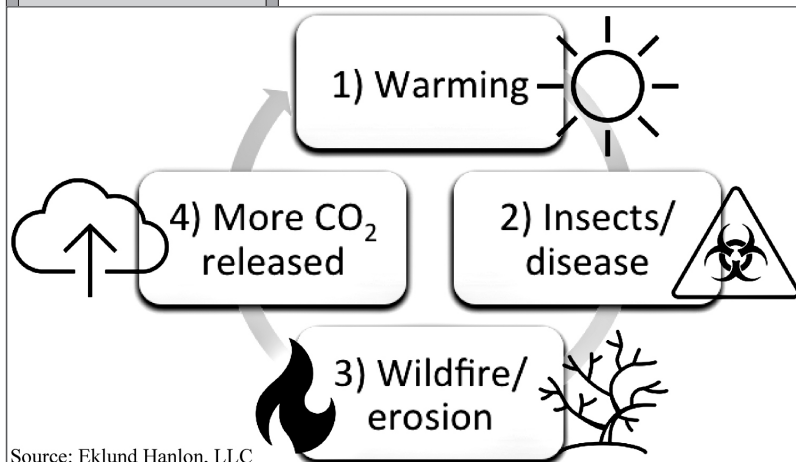


Adapted from: NASA/JPL-Caltech. <https://climate.nasa.gov/causes/>

The above graph compares global surface temperature changes (red line) and the Sun’s energy that Earth receives (yellow line) in watts per square meter since 1880. The amount of solar energy that Earth receives has followed the Sun’s natural 11-year cycle of small ups and downs with no net increase since the 1950s. Over the same period, global temperature has risen markedly.

Not only are we receiving less precipitation, but more of what we do receive falls in the form of rain instead of snow.

In our integrated environmental systems, the problem is self-perpetuating:



Source: Eklund Hanlon, LLC

- 1) **WARMING:** more carbon dioxide in our atmosphere traps solar radiation and results in warmer temperatures
- 2) **INSECTS/DISEASE:** warmer temperatures provide a more favorable climate for forest insects and diseases
- 3) **FOREST LOSS:** the loss of entire forests in the Rocky Mountains to insects or disease contributes to increasingly destructive wildfire, desertification, and erosion of soils
- 4) **CO₂ RELEASE:** wildfire and soil erosion and degradation causes the release of carbon that was once sequestered into the atmosphere
- 5) **DOWNWARD SPIRAL:** the cycle continues and conditions worsen.

Demand Management

Soil Degradation

“Buy-and-Dry”

Less Water Spurs Adaptation

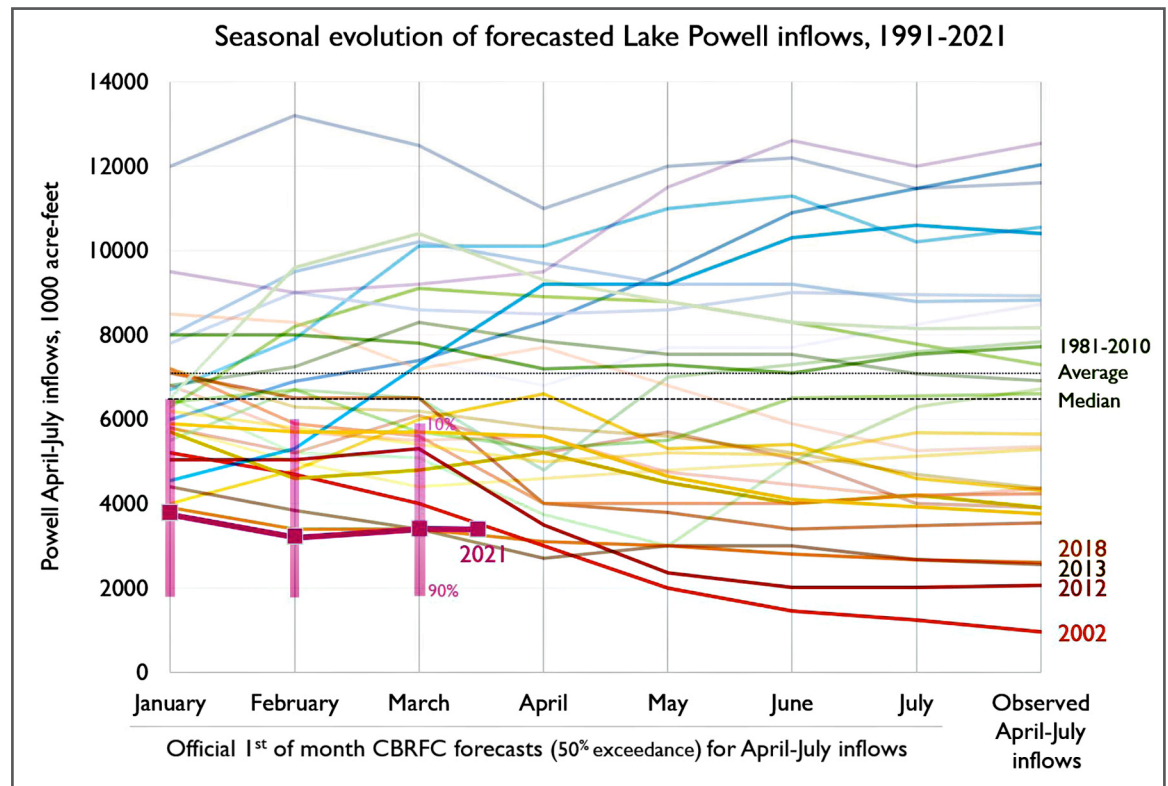
The most current scientific analysis and review of Colorado River data supports this unfortunate dynamic: “Our results underscore that greenhouse gas emissions reduction and moderating or decreasing atmospheric greenhouse gas concentrations may be critical to maintaining sufficient streamflow volumes to satisfy current and future water use while also complying with interstate and international water allocation agreements.” (Wheeler, 2021; Miller, 2021).

Agriculture in the Colorado River Basin

Agriculture in the Western US has declined and so have our soils. Just as soil degradation has contributed to our condition, so too can soil regeneration be our salvation. The latest Agriculture Census, released in 2019, shows the amount of US agricultural land continued to decline as did the overall number of farming and ranching operations. The 2.04 million farms and ranches marked a three percent decline from 2012. Simply put, land use practices and climate change are resulting in erosion of our soils. (Borrelli, 2020).

Another principal threat to irrigated agriculture in the Western US is the practice of permanently transferring water from irrigated land (aka “buy-and-dry”). (Colorado’s Water Plan, 2015). “Buy-and-dry” is generally disfavored under state water policy due to its potential to negatively impact agricultural communities and economies. (*Id.*). Colorado’s Water Plan calls for measurable shifts from buy-and-dry to alternative transfer methods such as lease-fallowing arrangements.

If necessity is the mother of invention, some good news in all the dismaying water data may be that less water becomes the crucible in which new practices and collaborations take shape to: regenerate soils; increase sustainable food production; sequester carbon; and conserve water. Regenerative cropping and grazing management practices can increase water percolation and retention in soils. (Elevitch, 2018; Teague, 2018). A Demand Management program could encourage wider adoption of these practices while freeing up irrigation water that could help with water levels at Lake Powell. The science seems clear that even more strategic farming and ranching practices will be necessary to grow more with less water in a Colorado River Basin impacted by climate change while avoiding buy-and-dry. (Wheeler, 2021; Miller, 2021). A Demand Management program appears critical to provide agricultural producers with additional options moving forward.



Source: Jeff Lukas, @LukasClimate; data courtesy of NOAA CBRFC; <https://www.cbrfc.noaa.gov/> Additional data and plots for Lake Powell inflow forecasts: https://www.cbrfc.noaa.gov/wsupt/graph/front/esplot_dg.html?year=2021&id=GLDA3

Demand Management

Compact Provisions

Upper Basin Burden

Too Little, Too Late

Purchasable Water Rights

Lake Powell & Lake Mead

Storage Abundance

“System Water”

Aridification

The Law of the River

The agreements, laws, policies, and practices that govern the use of Colorado River water constitute the “Law of the River.” Complete and thorough descriptions of this canon exist elsewhere. For our purposes, it is sufficient to note the foundation of the Law of the River: *i.e.*, the Colorado River Compact of 1922. The Compact divided the river basin at Lee Ferry, Arizona, and apportioned 7.5 million acre-feet of consumptive use to the Upper Basin and 7.5 million acre-feet to the Lower Basin. Importantly, the Compact also prohibited the Upper Basin States from “caus[ing] the flow of the river at Lee Ferry to be depleted below an aggregate of 75,000,000 acre-feet for any period of 10 consecutive years...” (Compact, 1922). The intent of this provision was to guard against the Upper Basin exceeding its apportionment from a river that experienced annual flows of 18 million acre-feet on average. When, however, climate change has reduced average flows to 12.5 million acre-feet, the non-depletion provision effectively places the entire burden of climate change on the Upper Basin. The negotiators and signatories to the Compact did not anticipate climate change and, therefore, did not intend one basin to bear the brunt of reduced river flows. For this reason, the non-depletion provision has become the chief obstacle to the equitable apportionment it was originally crafted to enforce.

This fact also suggests that minor surgery on the Law of the River provides too little medicine, too late. A recent study of reservoir elevations and inflows warns, “...the current management approach that allows only incremental changes to the Law of the River may be insufficient to adapt to the future conditions of the basin.” (Wheeler, 2021). Instead, the perfect storm of climate change, aridification, and a structural deficit calls for major, evasive (and probably invasive) action.

Demand Management: Friend or Foe?

For nearly two years, the Upper Basin has engaged in lively debate about Colorado River Demand Management. Unfortunately, the hydrology has not slowed its descent to accommodate these discussions. The positive view of Demand Management holds that a program paying users to temporarily and voluntarily leave water in the river is a key tool to address a falling system in a manner that recognizes the American West’s system of purchasable and transferable water rights. The negative position fears such a program would accelerate the decline of irrigated agriculture or the environment in the Upper Basin. Ironically, in a desperate attempt to cling to water that is no longer available, this position would limit agricultural water users’ access to the very capital that could keep them in production. Importantly, the negative view offers no alternative solution to address a climate-change-impacted river system. Far from being a foe, read on to learn why Demand Management should be embraced like an old friend.

Pre-Contingency Plan Disincentive

RE: LAKE POWELL & LAKE MEAD

Incentives matter, especially in a system of free enterprise with purchasable and transferable water rights. Prior to the signing of the Colorado River Drought Contingency Plan in 2019, sovereigns and water users in the Upper Basin of the Colorado River actually faced a structural *disincentive* to conserve water. Firmly in the grips of aridification where demand outstrips supply, how could this be? In addition to Mark Felt’s (aka Deep Throat) advice to “follow the money” in the US West, it also pays to “follow the water.” Following the water here brings us to the two largest reservoirs in the United States: the Upper Basin’s insurance policy, Lake Powell, and the Lower Basin’s bank account, Lake Mead.

Lake Mead and Lake Powell are the two largest human-made reservoirs in the United States. Lake Mead’s capacity is 28,229,730 acre-feet and Lake Powell can hold 26,215,000 acre-feet of water, with a combined capacity of 54,444,730 acre-feet. At the current average inflow to the river (12,500,000 acre-feet), these two reservoirs could hold four years, four months’ worth of the river’s flow. As such, we have an abundance of water storage infrastructure, which means our Colorado River challenge is a water management challenge.

Any water in the Upper Basin conserved prior to 2019 was deemed “system water” the moment it hit Lake Powell. Colorado River system water is the water used to determine releases from Lake Powell, through the Grand Canyon, to Lake Mead. Because water conserved in the Upper Basin had no special designation, any water that made it to Lake Powell was used to calculate the releases and, therefore, could actually trigger a *larger* release of water from Lake Powell.

Negotiations

Faced with the threat of increasing aridification, the seven basin states and the federal government commenced emergency river management talks in 2017. Projections for Lake Powell and Lake Mead were alarming and showed that mere reliance on the operations policies then in place could bankrupt both reservoirs well in advance of the 2026 deadline for replacement criteria. (Interim Guidelines, 2007).

<p>Demand Management</p>	<p>Lower Basin Situation</p> <p>The Upper Basin had long criticized the Lower Basin’s water use that withdrew more water than flows into the system on an annual basis. The Upper Basin referred to this imbalance as “the structural deficit.” Furthermore, for reasons too involved to review in detail here, the Lower Basin states were facing their own disincentives to bank water in Lake Mead. California, the largest user in the Lower Basin, wanted assurances that Arizona would refrain from ordering the release of water the Golden Bear had banked in Lake Mead. Arizona, on the other hand, felt compelled to order the release of its entire legal apportionment from Lake Mead because of its junior priority on the river (the junior priority was the sacrifice Arizona was required to make to gain congressional approval of the Central Arizona Project). The stage was set for negotiations that would determine whether terms could be reached. The Lower Basin’s saga deserves its own article and I will not test your patience with it here.</p>
<p>Lower Basin Releases</p>	<p>Upper Basin Situation</p> <p>The Upper Basin sovereigns sought more control over their shared destiny, especially given the entrenched nature and size of the structural deficit in the Lower Basin. Indeed, one of the reasons the system had not dropped even more quickly was because actual consumptive use in the Upper Basin failed, annually, to keep up with projections of greater water use. (Wheeler, 2021). Therefore, more water was showing up at Lake Powell, for subsequent release to Lake Mead, than the models predicted. This “extra” water in the system masked the real impact and rate of climate change. The true disruptive potential, however, of climate change would not remain hidden. The Lower Basin’s structural deficit was so great that, even with the Upper Basin already on a physically imposed water diet, the reservoirs continued to fall. Something had to be done.</p>
<p>“Extra” Water Confusion</p>	<p>Due to political, practical, and temporal realities, any immediate solution would need to work within the existing Law of the River. For one thing, the need to act quickly was incompatible with the lengthy environmental review processes typically required when making fundamental changes to existing management policy. In an attempt to avoid legal and practical crises on the river, Upper Basin interests began discussing two concepts: 1) operation of the initial units of the Colorado River Storage Project (Flaming Gorge, Aspinall, and Navajo reservoirs) to allow releases of water to address critical Lake Powell levels; and 2) creation of a safe harbor that would allow water users to voluntarily manage their demands and send conserved water to Lake Powell, free from the threat that the volume of conserved water would trigger larger releases of water to Lake Mead.</p>
<p>Upper Basin Concepts</p>	<p>Colorado River Drought Contingency Plan</p> <p>Over the course of 2018, the Upper Basin and Lower Basin concepts were discussed, debated, and eventually agreed to by the seven states and federal agency representatives. After much intrastate and interstate wrangling, the most recent addition to the Law of the River was settled on in a suite of agreements collectively known as the Colorado River Drought Contingency Plan (Contingency Plan or DCP). See Article, <i>TWR</i> #182 & Bovee, <i>TWR</i> #201. The states further agreed to pursue federal legislation directing the Secretary of the Interior to sign and implement the Contingency Plan agreements upon execution by the parties. On March 19, 2019, the Basin States wrote a letter to the US Congress requesting this legislation. In transmitting suggested legislative language, the Basin States noted that, much like the Contingency Plan itself, the language was “the product of collaboration and compromise” and that the Contingency Plan “will enhance existing water management tools in order to address a looming water crisis in the Colorado River Basin.” (Contingency Plan, Attachment C). The states also stressed the urgency of the situation, “[i]t is the position of the Basin States, and water contractors within those states, that immediately enacting the proposed federal legislation and implementing the [Contingency Plan] reduces the probability that Lakes Powell and Mead will decline to critically low elevations — which could occur as early as 2021 — and promotes both domestic and binational participation in drought contingency planning.” (Contingency Plan, Attachment C).</p>
<p>Contingency Plan (DCP)</p>	<p>When asked what the Law of the River means, many Colorado River negotiators quip, “whatever the seven states say it means.” The retort proved true when, in an exceptionally polarized Congress, passage of the requested legislation occurred on April 8, 2019, a mere twenty days after the states submitted their request.</p>
<p>Looming Crisis</p>	<p>The Contingency Plan consists of an umbrella “Companion Agreement” (officially titled “Agreement Concerning Colorado River Drought Contingency Management and Operations”) and the following appended agreements:</p> <ul style="list-style-type: none"> • “Agreement for Drought Response Operations at the Initial Units of the Colorado River Storage Project Act” • “Agreement regarding Storage at Colorado River Storage Project Act Reservoirs under an Upper Basin Demand Management Program”
<p>Quick Passage</p>	
<p>Contingency Plan Specifics</p>	

Demand Management
Lake Powell Target
Demand Management Program
Surviving Termination (2057)
Sovereigns' Account
Holding Water in Powell
Program Design
Empty Account

- “Lower Basin Drought Contingency Plan Agreement”
 Exhibit 1: “Lower Basin Drought Contingency Operations”
 Appendix 1: “Table of Extraordinary Conservation (EC) ICS available as of the Effective Date, in accordance with Section IV.A.1 of the LBOps”
- “Proposed Legislation” (Contingency Plan, 2019).

Responsive Operations of Reservoirs above Lake Powell

The first agreement directs and authorizes the Secretary of the Interior to operate the Colorado River Storage Project Act reservoirs (Flaming Gorge, Aspinall, Navajo) to protect the Lake Powell “Target Elevation” of 3,525 feet above mean sea level. This includes the authority to take emergency action at these reservoirs. Unless the parties agree otherwise, this agreement terminates on December 31, 2025. (Contingency Plan, Attachment A1).

Demand Management

The second agreement authorizes the Secretary of the Interior to create an account “available for use by the Upper Division States” not subject to release or used to “cause a different release from Lake Powell than would have otherwise occurred under” the 2007 [Guidelines] or post 2026 operational rules.” (Contingency Plan, Attachment A2). The agreement describes the four steps for approval of the Upper Basin Demand Management Program:

- First, the Upper Colorado River Commission makes findings that Demand Management is necessary.
- Second, the Upper Basin States and the Secretary of the Interior agree on the methodology, process and documentation for verification and accounting for Demand Management water.
- Third, the Upper Colorado River Commission approves of the Program.
- Finally, each Upper Basin State representative on the Upper Colorado River Commission approves the Program. (Contingency Plan, Attachment A2).

Whether or not the Law of the River is fundamentally altered under some alternative management paradigm, Demand Management is critical to the future of the Colorado River. The Contingency Plan recognizes this importance by allowing the concept of Demand Management to survive termination of the Contingency Plan through 2057. (Contingency Plan, Attachment A2).

Account Holders in Lake Powell: Sovereigns and Sovereigns Only

In describing the Demand Management account, the obvious is clear: sovereigns and only sovereigns are capable of holding water accounts in Lake Powell. At no point in the Basin States’ contingency plan negotiations did Colorado or any other state voice support for any entity other than a sovereign holding water in the Demand Management account in Lake Powell. The signatories to the Colorado River Contingency Plan Demand Management Agreement were all signing on behalf of sovereigns and sovereigns only. (Contingency Plan, Attachment A2). Moreover, not only would private accounts held by non-sovereigns be inconsistent with the Demand Management agreement and approvals described above, but such accounts could also undermine the benefit of the bargain Colorado and the other Upper Basin States negotiated in 1922. This is because the mere existence of those accounts would move substantially closer to Upper Basin to Lower Basin transfers of water. Such transfers would fly in the face of the benefit of the bargain the Upper Basin States negotiated to use water at their own pace (as opposed to engaging in a race to develop prior appropriation rights that the Lower Basin had already won). Sovereigns and only sovereigns are or should be capable of holding water in Lake Powell. The role of a sovereign here is to design a program that encourages the participation of its non-sovereign water users (e.g. private individuals and businesses, special water districts, municipal water providers).

Post-Contingency Plan

PROGRAMS RESERVED TO THE STATES

Belying the pending crisis, the Upper Basin has yet to take even the first of the four steps required for Demand Management program approval. While the signatory states created the Demand Management account upon approval by Congress and execution by the Upper Basin States, the negotiators intentionally reserved the design and detail of programs that would populate the account to the individual sovereign states.

While the Demand Management account now exists, it sits empty heading into yet another year of aridification. As of this writing, no state has approved a program to populate the account with water. Colorado, the state with both the largest contribution of water to the Colorado River, the largest Upper Basin apportionment, and the state where the discussion has been most involved to date, has yet to determine whether any program is feasible, achievable, worthwhile, or advisable. (CWCB, 2020).

The analogy of skydiving is apt. Thanks to the Contingency Plan, we now have a two-parachute rig strapped to our collective back. One parachute represents our ability to release water from reservoirs above Lake Powell to slow our descent. (Contingency Plan, Attachment A1). The second is Demand

Demand Management
Approvals Needed
Banking in Powell
Conserved Water Payments
Streamflow Restoration
Water Temperature Impacts
Equitable Demand Reductions
Linkage

Management. (Contingency Plan, Attachment A2). The ground is quickly approaching. We can argue about the color of the second chute until it is too late, or we can pull the ripcord and start focusing on landing as safely as possible.

Our pace on achieving the four approvals must accelerate considerably in order for the second parachute to deploy in time. In the words of NASA Flight Director Gene Kranz, failure is not an option. Demand Management, alone, may prove insufficient to keep Lake Powell above the Target Elevation but we simply must deploy it to help arrest our descent. Making the decision to “go” requires leadership. Director Kranz speaks to this as well: “Leadership is fragile. It is more a matter of mind and heart than resources.” (Kranz, 2000). Without courageous leadership, a perfectly good parachute will remain, useless, in our pack and our hard-won Demand Management account will continue to sit empty.

Demand Management Benefits

Colorado River Demand Management has the potential to benefit all water users, the environment, and regional economies. With the creation of the Demand Management account, the Upper Basin States have, for the first time, an incentive to encourage water users to conserve water for banking in Lake Powell. Moreover, because the account exists until at least 2057, this incentive does not depend on any facet of the Law of the River changing or remaining static.

The Demand Management Storage Agreement provides a path to compensated, voluntary, temporary payments for conserved water. Should Upper Basin uses have to be reduced for any reason, Demand Management is a way to effectuate that reduction in a manner that best avoids “buy-and-dry.” (Colorado’s Water Plan, 2015). Demand Management can help facilitate alternatives to buy-and-dry that keep water rights permanently tied to production agriculture, thereby helping increase food security.

Demand Management can also assist with streamflow restoration. Conserved water flowing to Lake Powell might be timed to maximize the benefit to endangered fish species and critical habitat in the Upper Basin. Fortunately, the decline of the Colorado River is coinciding with evolving environmental science that helps quantify the benefits when water is left in a river. (Szeptycki, 2018). These benefits can be quantified and monetized to benefit water users trying to decide whether to consume their water or to leave it in the river in a given year.

Downstream of Lake Powell, scientific analysis shows environmental benefits and detriments to both native and non-native fish species below Lake Powell depending on its contents. (Rosenberg, 2021). Cooler water temperatures result when reservoir contents are higher while warmer water is the product of lower water levels in reservoirs. While native fish may prefer warmer water temperatures from a drawn down Lake Powell, “they may also face invasion by warm water non-natives from Lake Mead.” (Rosenberg, 2021). The “best strategy is an intermediate strategy, where you have water that’s not too hot and not too cold...where you can still provide thermal conditions that are conducive to growth of native fish.” (Dibble, 2021). Demand Management water in the Colorado River System can make it easier to hit this “Goldilocks Zone” where reservoir releases are neither too hot nor too cold.

An Urgent Call to Action

While you have been reading this article, our continued, collective skydive has brought us that much closer to an unacceptable, and unpleasant, reunion with the ground. Simple physics demands we act. Two recent studies underscore the fact that managing Upper Basin demands is critical to addressing the decline of the Colorado River. (Wheeler, 2021; Miller, 2021). One argues that “[e]quitable demand reductions will be an important part of water management in the Colorado River basin in the era of climate change.” (Wheeler, 2021). A Demand Management program appears to be the most equitable and beneficial method for reducing demands without accelerating the buy-and-dry of irrigated agriculture.

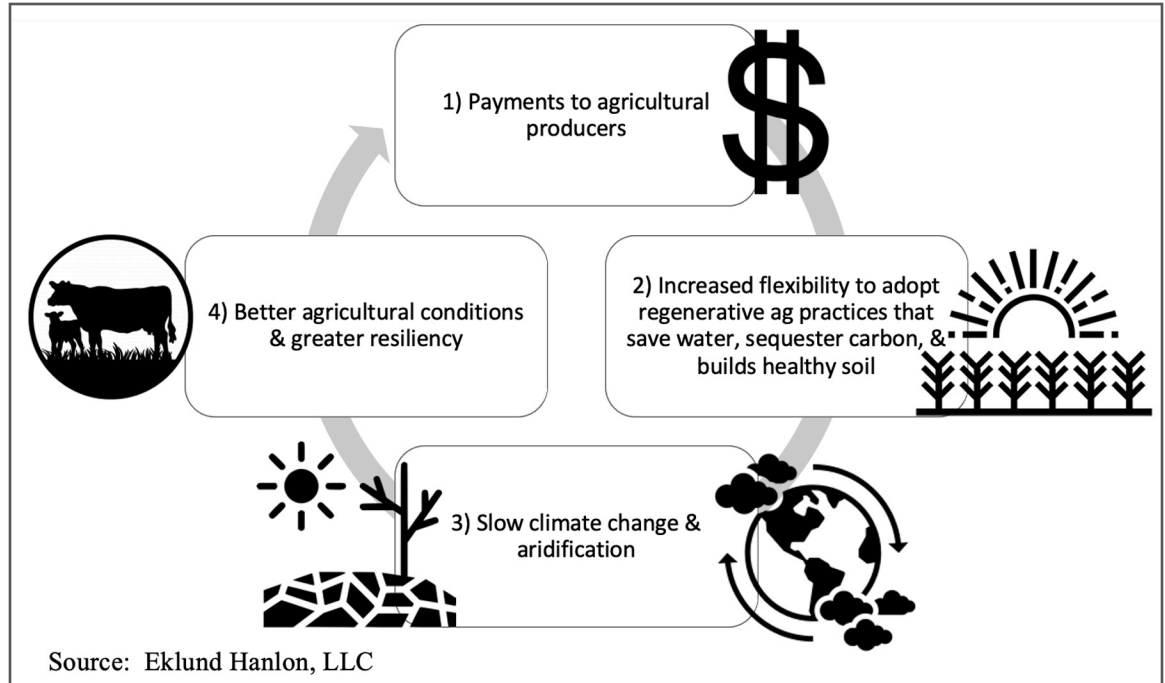
Livelihoods, cultures, economies, food production, and environments are inextricably linked to the Colorado River. As such, sovereigns should involve both public and private sectors in making the next round of macro and micro water management decisions. The science seems clear that Colorado River management moving forward also requires more than a mere tweak here or there to the 2007 Guidelines for river operations. The fundamental tenants of interstate water management are overdue for a serious reevaluation. One part of the basin bearing the vast majority of climate change risk and reality is neither equitable nor sustainable. Moreover, to use a basketball analogy, the clock is not our friend. We are playing from behind and do not have the luxury of waiting until 2026 to adopt new water management policy.

Each stakeholder on the Colorado River has an important role to play and Demand Management can facilitate their involvement. By now, you probably have a sense of the roles that federal, tribal, interstate, state, and local governments play on the Colorado River. Less often discussed is the role of the private

Demand Management

For-Profit Interests

sector. Importantly, private, for-profit interests include farmers and ranchers, rafting guides and flyfishing outfitters, main street businesses, and professional services industries. Given the scope and urgency of the challenge, excluding or vilifying stakeholders wastes precious time — time better spent cultivating and encouraging new water management ideas, innovation, and expertise from stakeholders from all sectors for the benefit of the Colorado River basin. (Ryder Howe, 2021). Providing agricultural producers access to capital in ways that avoid buy-and-dry and de-risk production is also important.



Conclusion

The sovereigns in the Colorado River basin should move quickly to make effective, efficient, equitable, and holistic management decisions in response to climate change. Demand Management has the potential to encourage conservation, innovation, and collaboration. Allowing agricultural producers greater flexibility and options encourages regenerative agricultural practices that could help address climate change. Compensating Upper Basin water users for leaving water in the river is a critical tool currently available to us by virtue of the Contingency Plan and can help us control the system’s descent. Upper Basin ranches like Mary and Ole Gunderson’s and those on Ute Tribal lands, stand a chance of not only still being in active production but thriving and contributing to the solutions that save the Colorado River. In summary, effective and efficient Demand Management could jumpstart a different cycle: 1) money is paid to agricultural water users for temporarily leaving their water in the river; 2) the increased flexibility this capital provides producers increases their ability to adopt regenerative agricultural practices that save water, sequester carbon, and regenerates healthy soil; 3) regenerative practices help slow climate change and aridification; 4) slowing climate change and aridification results in better agricultural conditions and greater resiliency; and 5) a stronger agricultural sector increases yields and nutrient content that results in more money for producers.

FOR ADDITIONAL INFORMATION:

JAMES EKLUND, Eklund Hanlon LLC, 720/ 280-1835, james@eklundhanlon.com

Demand Management Cycle

James Eklund advises private and public sector clients on water issues and policy at his law firm, Eklund Hanlon LLC, located in Denver, Colorado. He served the state of Colorado for over a decade as an Assistant Attorney General, legal counsel to Colorado’s Governor, Director of the Colorado Water Conservation Board where he was the architect of Colorado’s Water Plan, and Colorado’s Colorado River representative when he signed the Colorado River Contingency Plan on behalf of the state of Colorado. He is a fifth generation Coloradan from the state’s Western Slope where his great-great grandparents, Ole and Mary Gunderson, homesteaded in 1888 on a tributary to the Colorado River and where he still spends as much time as he can helping his parents run their cow-calf operation. He also teaches courses in the University of Denver’s graduate environmental policy program. He loves to fly and would even stomach skydiving, depending, of course, on altitude and who packed the parachutes.

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- April 15** **WEB**
Finding and Retaining Good Leaders and Staff Webinar, 4:00 pm to 6:00 pm Eastern Time. Presented by EPA to Provide Insight Into Utility Operation & Maintenance. For info: www.epa.gov/small-and-rural-wastewater-systems/operating-and-managing-small-wastewater-and-water-utilities
- April 15-16** **WEB**
Washington DC Roundtable: Interstate Council on Water Policy, Western States Water Council & National Water Supply Alliance Event, 4/15: Noon - 3:30 pm Central Time; 4/16: 9 am - 12:30 pm CT. Program will include Updates from the US Geological Survey, NOAA-National Weather Service, US Army Corps of Engineers, National Integrated Drought Information System, Key Congressional Committee Staff, and More. FREE / Registration Needed. For info: ICWP webpage (www.icwp.org) or WSWC webpage (<https://westernstateswater.org>); Sue Lowry, ICWP, 307/ 630-5804 or Sue@icwp.org
- April 16** **WEB**
Berkeley Law's 2021 Environmental Awards Banquet, 4:00 pm to 6:00 pm Pacific Time. Presented by Center for Law, Energy, & the Environment. For info: <https://na.eventscloud.com/ereg/index.php?eventid=608903&>
- April 16** **WEB**
Drought Planning Methodologies & Tools: Supply/Demand Visualization Tool & Water Demand Data Assessment Webinar, 10:00 am - Noon and 1:00 pm - 3:00 pm Pacific Time. Presented by the State Water Resources Control Board; Meeting ID: 946 4054 8166 | Passcode: 248201. For info: <https://waterboards.zoom.us/j/94640548166?pwd=VDdzZVVhUWZrTzZjRGdmbjBNOEcrZz09>
- April 19** **WEB**
12th National Water Quality Monitoring Conference - "Working Together for Clean Water," National Water Quality Monitoring Council Event. For info: www.nalms.org/2021nmc/
- April 19-22** **CA**
2021 AEP California State Conference: Planting the Seeds of Knowledge, Yosemite. Presented by Assoc. of Environmental Professionals. For info: www.califaep.org/programs.php
- April 19-23** **WEB**
12th National Monitoring Conference: Working Together for Clean Water, Virtual Event. Presented by the National Water Quality Monitoring Council. For info: <https://acwi.gov/monitoring/> or <https://www.nalms.org/2021nmc/>
- April 21** **WEB**
WaterSmart Innovations Webinar, RE: Water as Hidden Resource; Marketing Native Plants; Technology & Collaborative Conservation. For info: <https://watersmartinnovations.com/spring2021webinar/>
- April 22** **WEB**
Contaminated Sites Liability & Litigation Risk Webinar, 8:30 am - 5:30 pm Eastern Daylight Time. Canadian Institute Virtual Conference. For info: www.canadianinstitute.com/
- April 22** **WEB**
Asset Management - Planning for the Future Webinar, 4:00 pm to 6:00 pm Eastern Time. Presented by EPA to Provide Insight Into Utility Operation & Maintenance. For info: www.epa.gov/small-and-rural-wastewater-systems/operating-and-managing-small-wastewater-and-water-utilities
- April 22-23** **WEB**
Law of the Rio Grande - 20th Annual Virtual Conference, Hot Topics in Water Management & Conservation. For info: CLE International, 800/ 873-7130 or www.cle.com
- April 22-23** **WEB**
Water Education Foundation (WEF) California Water 101 Workshop, RE: California Water History; Laws; Geography; & Politics. For info: www.watereducation.org/event-calendar
- April 25-May 1** **DC**
Water Week 2021, Washington. TBA. Presented by National Assoc. of Clean Water Agencies. For info: www.nacwa.org/conferences-events/events-at-a-glance
- April 26-28** **WEB**
2021 AWRA/CGWA Annual Symposium, Virtual Event. Presented by the Colorado Chapter of the American Water Resources Association & the Colorado Groundwater Association. For info: <https://awracolorado.org/meetinginfo.php>
- April 26-29** **TX**
Texas Watershed Planning Short Course, Bandera. Mayan Dude Ranch. Sustainable Proactive Approaches to Managing Water Quality. For info: <https://twri.tamu.edu/our-work/engaging-educating/texas-watershed-planning/workshop-schedule/2021/april/texas-watershed-planning-short-course/>
- April 27-28** **DC**
National Water Policy Fly-In, Washington. Hilton Washington DC National Mall. Presented by National Assoc. of Clean Water Agencies. For info: www.nacwa.org/conferences-events/event-at-a-glance/2021/04/27/nacwa-events/national-water-policy-fly-in
- April 28** **WEB**
WaterSmart Innovations Webinar, RE: Reaching the Hard to Reach; Water Waste Technology; Water Efficiency Audits. For info: <https://watersmartinnovations.com/spring2021webinar/>
- April 28** **WEB**
Lead and Copper Rule Revisions, EPA Roundtable, RE: Public Engagement to Obtain Further Input on EPA's Lead and Copper Rule Revisions (LCRR). For info: www.epa.gov/safewater
- April 28-30** **FL**
PFAS Summit: Regulatory and Legal Issues; Monitoring; Treatment; Cleanup and Disposal Technologies; Tampa. Renaissance Tampa International Plaza Hotel. Attend In-Person or Virtually. For info: <https://pfasforum.org>
- April 29** **WEB**
Emergency Response and Cyber Security Webinar, 4:00 pm to 6:00 pm Eastern Time. Presented by EPA to Provide Insight Into Utility Operation & Maintenance. For info: www.epa.gov/small-and-rural-wastewater-systems/operating-and-managing-small-wastewater-and-water-utilities
- May 5** **WEB**
Lead and Copper Rule Revisions, EPA Roundtable, RE: Public Engagement to Obtain Further Input on EPA's Lead and Copper Rule Revisions (LCRR). For info: www.epa.gov/safewater
- May 11-12** **WEB**
Emerging Water Technology Symposium, Meet Well-Known Experts from Across the Globe. For info: <https://ewts.org>
- May 12-13** **WEB**
Association of California Water Agencies (ACWA) Spring Virtual Conference & Exhibition, RE: Critical Issues Affecting California's Water Industry. For info: www.watereducation.org/event-calendar
- May 13** **WEB**
Immerse 2021 - A Virtual Benefit for the Freshwater Trust, 7pm - 8pm Pacific Time. Immerse in TFT's Analytical Approach & Data-Driven Work. For info: www.eventbrite.com/e/immerse-2021-a-virtual-benefit-for-the-freshwater-trust-tickets-138348840105



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CALENDAR

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May 18-21 **TN**
National Pretreatment Workshop & Training, Nashville. Nashville Marriott at Vanderbilt University. Presented by National Assoc. of Clean Water Agencies. For info: www.nacwa.org/conferences-events/event-at-a-glance/2021/05/18/nacwa-events/national-pretreatment-workshop-training

May 19-20 **WEB**
Water & Wastewater Investor Forum, RE: New Investments; Growth Strategies; Financing Sources & Creative Deal Structures. For info: www.euci.com/events/ or 303/ 770-8800

May 25-27 **VA**
11th Annual Choose Clean Water Conference: A Changing Chesapeake, Richmond. TBA. For info: Drew Robinson, 443/ 927-8049, RobinsonAQ@nwf.org or www.choosecleanwater.org/choose-clean-water-conference/2021

May 26-27 **CA**
Smart Water Utilities USA 2021: Reducing Water Leakage Across the Network - Exhibition & Conference, Long Beach. Presented by the Choose Clean Water Coalition. For info: www.usa.smart-water-utilities.com/?join=VR

June 2-4 **CA**
20th Institute for Natural Resources Law Teachers, Monterey. TBA. Presented by Rocky Mountain Mineral Law Foundation. For info: www.rmmlf.org/conferences

June 10-11 **WEB/WA**
Water Law in Washington Seminar, For info: Law Seminars International, 206/ 567-4490, registrar@lawseminars.com or www.lawseminars.com

June 14-15 **WI**
Strategic Communications: H2O Workshop, Milwaukee. Saint Kate - The Arts Hotel. Presented by National Assoc. of Clean Water Agencies. For info: www.nacwa.org/conferences-events/event-at-a-glance/2021/06/14/nacwa-events/strategic-communications-h2o-workshop

June 18 **CO**
SEER Climate Change Conference, Denver. TBA. Presented by the American Bar Association - Section of Environment, Energy & Resources Law. For info: https://www.americanbar.org/groups/environment_energy_resources/events_cle/section_calendar_archive/

June 23 **MT & WEB**
Real Estate Development Conference, Bozeman. TBD. For info: The Seminar Group, 800/ 574-4852, info@theseminargroup.net or www.theseminargroup.net

June 23-24 **TX**
Hydraulic Fracturing & Production Chemicals 2021, Houston. Hotel Derek. For info: <https://www.hydraulic-fracturing-chemicals.com/?join=VR>

June 30-July 1 **TX**
Annual Texas Groundwater Conference, Austin. Omni Austin Hoel Southpark. Presented by the American Groundwater Trust. For info: <https://agwt.org/civircrm/event/info?id=323&reset=1>

June 30-July 1 **WEB**
Western Governors' Association 2021 Annual Meeting, TBA. For info: <https://westgov.org/>