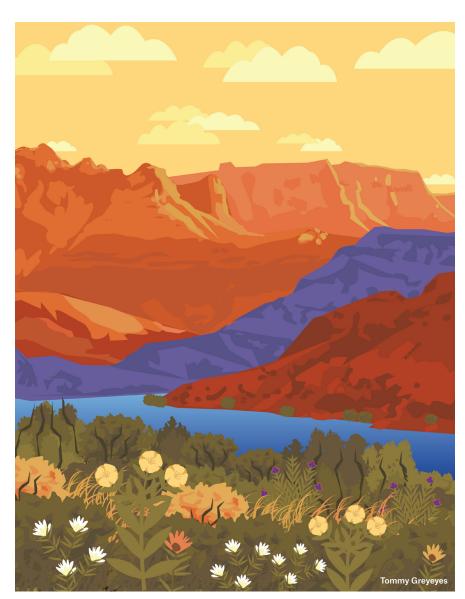
TEN STRATEGIES FOR CLIMATE RESILIENCE IN THE COLORADO RIVER BASIN

Stretching along the spine of the Rocky Mountains, across the Colorado Plateau, and within the Sonoran and Mojave Deserts, the Colorado River Basin is uniquely vulnerable to a wide range of hydrological, ecological, social, and economic impacts from climate change. Over the past two decades, the Colorado River Basin has experienced an ongoing decline in stream flows, record-setting heat, some of the driest years ever recorded, and previously unimaginable catastrophic fires. The scale and pace of climate-related changes pose an increasing risk to the reliability of water supplies that support humans and the environment.

The recently released report Ten Strategies for Climate Resilience in the Colorado River Basin offers an integrated path to increase water-related climate resilience and to spark action towards proactive, coordinated, and results-oriented watershed scale projects. The ten investment strategies shift the focus from managing water supply and demands in the context of drought, to implementing actions that directly adapt to, respond to, and mitigate the steady, compounding, and extreme risks of climate change to economies, communities, landscapes, and the water resources that support them.

The ten investment strategies range from well-demonstrated, to emerging, to untested at scale and address four resiliency questions.



Urban Conservation & Re-Use	Upgrading Agricultural Infrastructure & Operations	Mana	orest agement storation	Natı Distril Stor	outed	Res	vering servoirs Canals
EXPERIENC	ED	EM	ERGING			THEO	RETICAL
Industrial Conservatio & Re-Use	Croppi n Alternati New Ma Pathwa	ves & arket	Regene Agricu		Coal Retire Wa	ment	Reducing Dust on Snow

1. Could the investment strategy help the Basin *adapt to on-going climate shifts*?

Adaptation is an iterative risk management process that includes identifying vulnerabilities, project planning, implementation, and monitoring results throughout municipal sectors, agricultural operations, tribal lands, forests, and watersheds.

2. To what extent would the investment strategy *reduce pressure on existing water supplies*?

This resilience question takes a more traditional focus on augmenting supply, improving watershed yield, or reducing demand as pathways to increasing the buffer between current conditions and a future crisis.

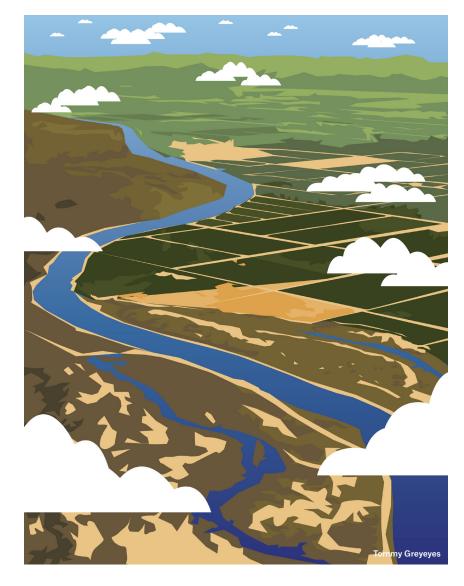
3. Would the investment strategy help *mitigate climate change*?

While global-scale reductions in greenhouse gas emissions are necessary to address the magnitude, speed, and scale of climate change dynamics, watershed-scale investment actions can reduce regional contributions to carbon emissions and foster local practices that remove carbon dioxide from the atmosphere.

4. Could the investment strategy

strengthen economic resilience in communities?

This question is about bolstering the sustainability or profitability of existing economic sectors or creating new jobs and businesses linked to restoration and/or infrastructure improvements.



adapt

reduce

mitigate strengthen

Summary of Ten Investment Strategies and Benefits

Strategy		Benefits for Climate Resilience			
Forest Management	Prioritize forest management and restoration to	Regulate snow melt runoff			
Restoration	maintain system functionality and biodiversity	Sequester carbon			
		Create jobs and reduce emergency costs			
Natural Distributed Storage	Restore degraded natural meadow systems to improve local aquifer recharge and water reten-	Build resistance to and support recovery from extreme weather events			
	tion, reconnect historic floodplains, and support	Sequester carbon			
	productive meadows and riparian ecosystems	Improve land value and ranch economics			
Regenerative Agriculture	Promote farming and ranching principles and	Build resistance to extreme weather events			
	practices that enrich soils, enhance biodiversity, restore watershed health, and improve overall	Enhance water-holding capacity of soils			
	ecosystem function and community health	Sequester carbon			
		Improve farm and ranch economics			
Jpgrading Agricultural	Upgrade diversion, delivery, and on-farm	Increase water efficiency			
Infrastructure & Operations	infrastructure and operations, including irriga- tion systems	Reduce consumptive use			
	uon systems	Sequester carbon or reduce greenhouse gas emissions			
		Improve farm economics			
Cropping Alternatives & New Market Pathways	Develop on-farm operational shifts, as well as market and supply chain interventions, to	Provide options for producers experiencing impac to crop productivity			
	incentivize water conservation, e.g. shifting to	Reduce consumptive use			
	lower water-use crops	Reduce greenhouse gas emissions			
		Improve economic viability of farms			
Urban Conservation & Reuse	Incentivize conservation technologies, indoor	Increase water efficiency			
	and outdoor conservation programs, and direct and indirect potable reuse	Reduce consumptive use			
		Reduce greenhouse gas emissions			
		Create jobs and limit rate shocks and impacts of water shortages			
Industrial Conservation & Reuse	Incentivize modifications and upgrades	Increase water and energy efficiency			
	to reduce water use and increase energy efficiencies	Reduce consumptive use and/or offset water use			
	enciencies	Reduce greenhouse gas emissions			
		Support water-smart economic development			
Coal Plant Retirement Water	Purchase or reallocate water rights from closed	Dedicate water to system or environmental benefit			
	or retiring coal plants to be used for system or environmental benefits, or other uses	Repurpose water (e.g. drinking water)			
		Reduce greenhouse gas emissions			
Reducing Dust on Snow	Improve land management practices to reduce	Improve snowmelt and runoff dynamics			
	the dust on snow effect—which controls the pace of spring snowmelt that feeds the head- waters of the Colorado River	Improve water yields			
Covering Reservoirs	Implement solutions to reduce evaporation from	Reduce system loss and improve system efficiency			
& Canals	reservoirs and conveyance systems	Increase water supply availability			
		Create cost savings			



Next Steps and Opportunities

Three near-term next steps to moving the ten investment strategies forward include:

1. Demonstration Projects & Investments. Identifying and implementing demonstration projects and shovel-ready investments that generate place-based and regional benefits and build knowledge on the applicability, scalability and co-benefits of each investment.

2. Financing. Designing a financing strategy for a diversified and coordinated project portfolio to support the implementation and monitoring of on-the-ground projects within each of the strategies.

3. Research. Developing an action-oriented research scope that monitors and tracks pilot projects to explore outcomes for the ten strategies including water supply gains, adaptation benefits, and climate mitigation potential.

As on-the-ground projects and implementation experience continue to inform how the strategies can provide cost-effective and meaningful results, developing **crosssector partnerships** and **basin-wide funding** for such investments will be necessary to implement the strategies at a scale commensurate to the challenge. While it is too early to say precisely how such a coordinated funding approach might be sourced and governed, there are existing federal and state programs that could be applied in a synchronized fashion with a clear water-related climate resilience goal for the Colorado River Basin. Philanthropic and private funding could be used to match or leverage these federal and state dollars. Development of such an integrated approach to water-related climate resilience funding is particularly timely for several reasons:

1. Congress, the federal administration and several Basin states are focused on bolstering climate mitigation and climate resilience, and water and watershed resilience can and should be at the cutting edge of those efforts;

2. The Basin states, tribes, and most major water providers and users in the Basin acknowledge the risks associated with climate change and are beginning to look for ways to address the risks; 3. Over the next few years, the operational guidelines for the River will be renegotiated, and the effects of climate change will be central to that negotiation. While the guidelines' negotiations are not necessarily the forum for structuring investments in these ten strategies, the guidelines' process brings a clear focus to the challenges facing the Basin and may serve to motivate a more coordinated approach to resilience; and

4. Most importantly, there is no time to waste. The effects of climate change, as manifested in a year like 2020, are here now. Many of the resilience strategies will take time to be scaled-up and produce results across the Basin's watersheds.