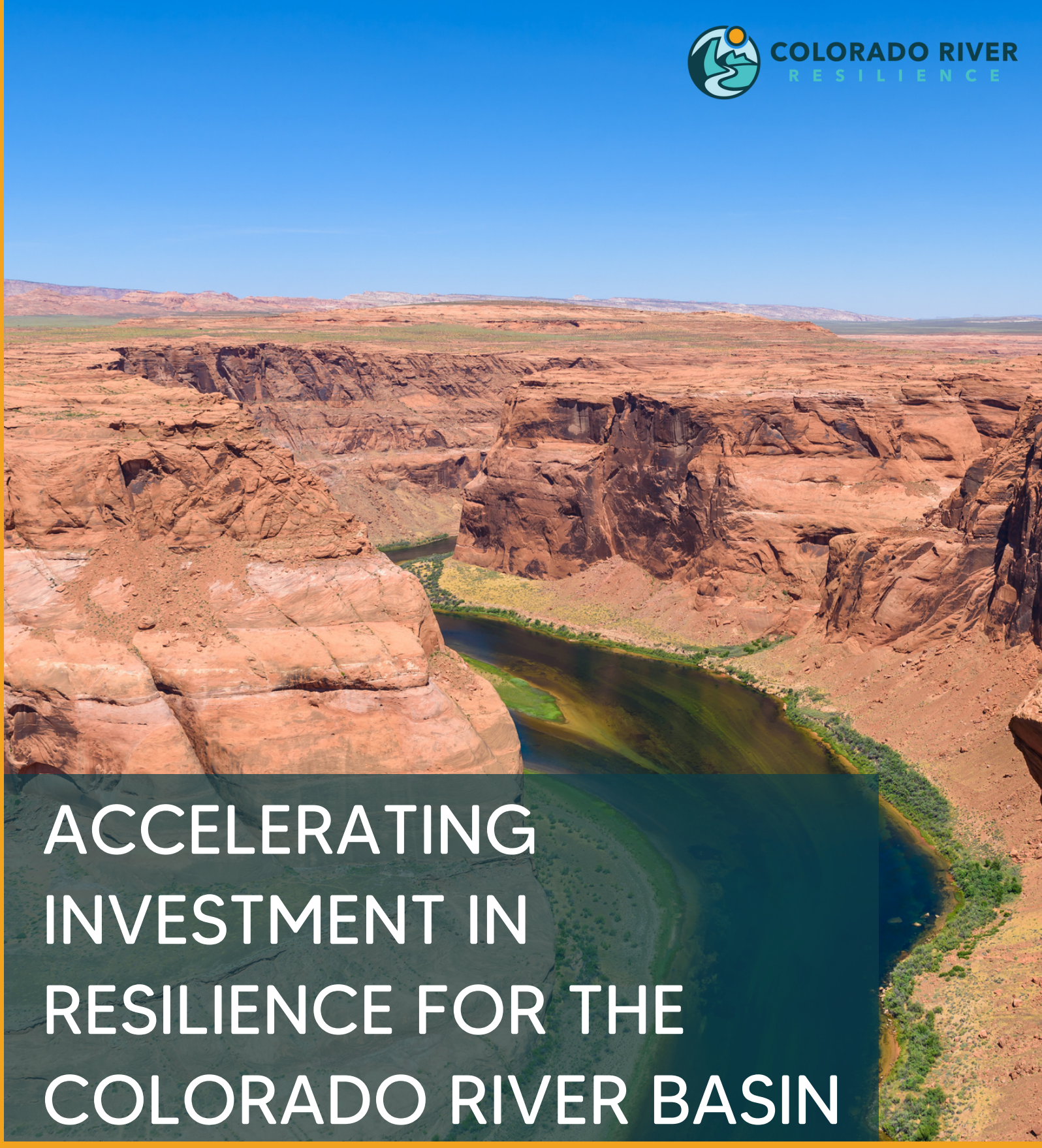
COLORADO RIVER
RESILIENCE



ACCELERATING INVESTMENT IN RESILIENCE FOR THE COLORADO RIVER BASIN

December 2023

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ACKNOWLEDGEMENTS

This report was prepared with support from American Rivers, Environmental Defense Fund, National Audubon Society, Theodore Roosevelt Conservation Partnership, The Nature Conservancy, Trout Unlimited, and Western Resource Advocates. The development of this report was funded, in part, by the Walton Family Foundation.

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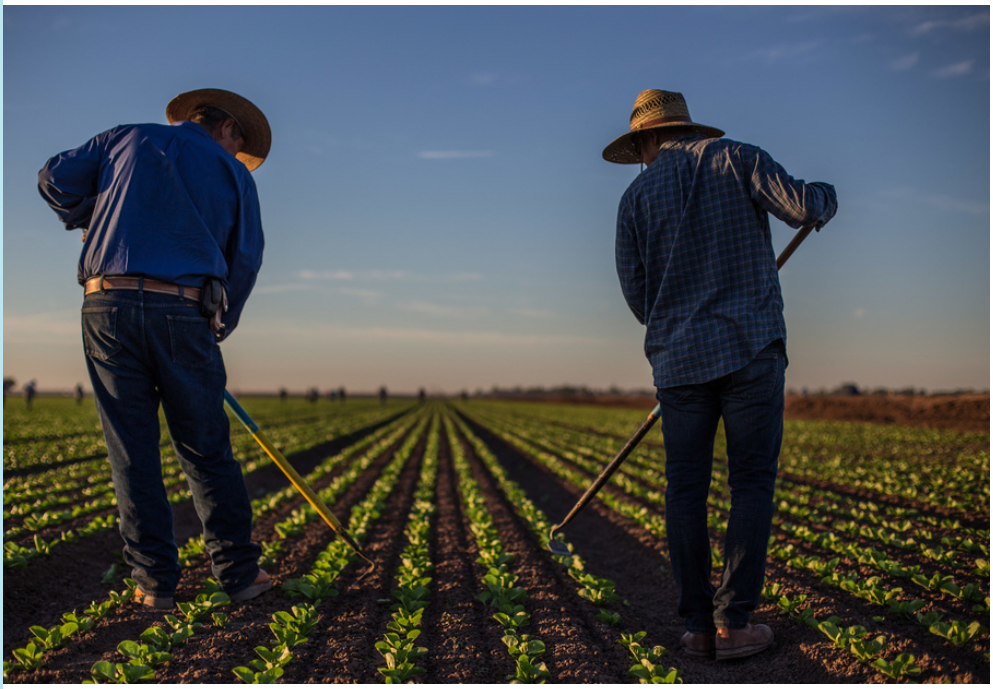


The Colorado River Basin is a lifeline for the West.

Often viewed as a plumbing system comprised of a series of reservoirs, canals, conduits, and headgates, the Colorado River is also the backbone of a basinwide ecosystem. Millions of people in two countries, seven states, and 30 federally recognized Tribal Nations rely on this river to provide clean, safe, and reliable drinking water; irrigate more than five million acres of farmland; and support irreplaceable landscapes and habitat for wildlife and migratory birds, including endemic and multiple at-risk species unique to the Colorado River region. The river also sustains an estimated $1.4 trillion in annual economic activity, including a $26 billion outdoor economy, and 16 million jobs across the Western United States.

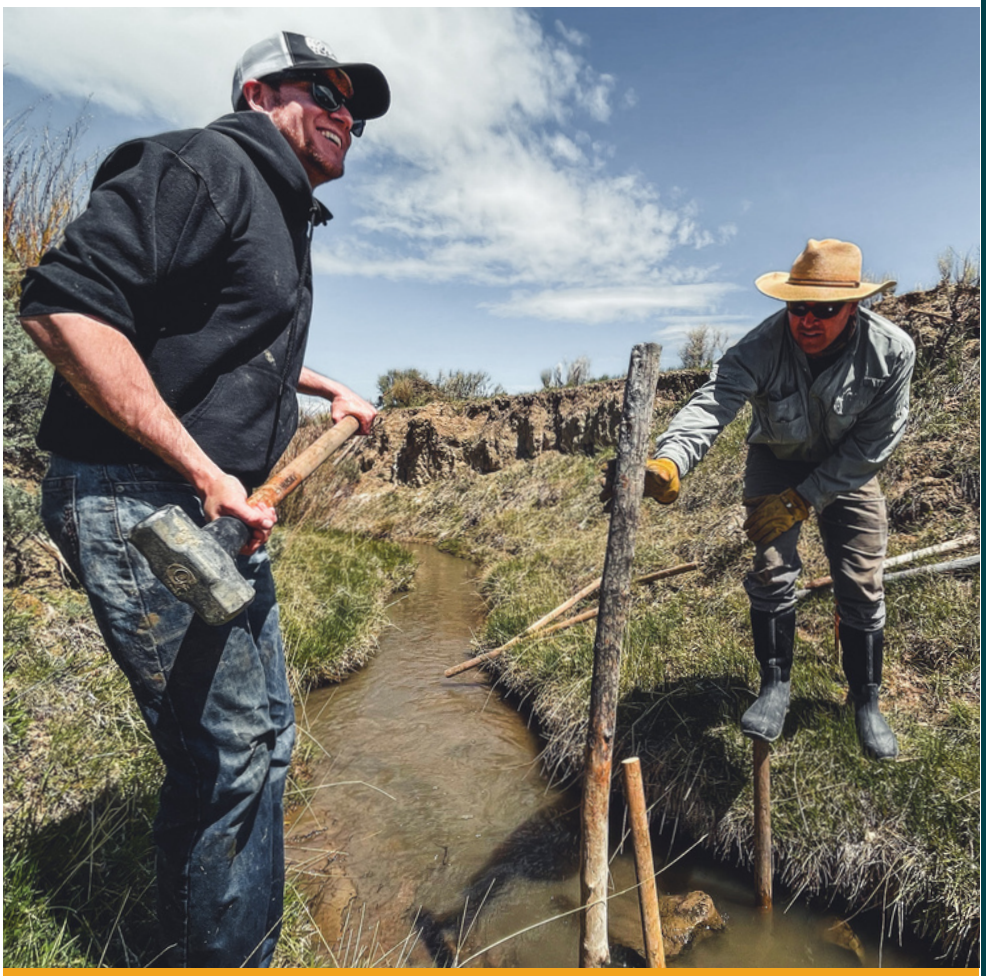
Today, the Colorado River lifeline is at risk. Long-running, severe drought coupled with increasingly outsized demand for limited water supplies are pushing the Colorado River to its breaking point. There is an urgent need to adjust and adapt to rapidly changing conditions in the Basin. Lasting change, however, requires a consistent source of investment to ensure the Colorado River lifeline continues to exist for generations to come.

Significant federal investments have been made recently to address near-term challenges facing the Colorado River Basin. Now the focus must pivot toward utilizing remaining federal resources to drive new, sustained, and greater investments in projects aimed at building long-term resilience. This paper calls attention to the need and opportunity for long-term resilience-building efforts in the Colorado River Basin by:

- Describing what resilience means for the Colorado River Basin and underscoring and bringing to light the need and opportunity for accelerating and scaling resilience-building efforts that will help the Basin adapt to a changing climate.
- Acknowledging key federal investments from the Bipartisan Infrastructure Law (BIL) and the Inflation Reduction Act (IRA) that have been crucial in staving off some of the worst potential impacts to the Colorado River Basin from drought and changing hydrology.
- Underscoring the importance of future BIL and IRA investments to focus on increasing the pace and scale of a broader suite of long-term strategies aimed at improving the Basin's capacity to adapt to changing conditions while also protecting water supplies, increasing economic agility, and mitigating emissions where possible.
- Highlighting 20 projects that are ready for additional investment to further accelerate resilience across the Basin.

THE NEED FOR RESILIENCE INVESTMENTS IN THE COLORADO RIVER BASIN

The Colorado River Basin is experiencing drought conditions exacerbated by hotter temperatures and more variable precipitation that present severe risks to the social, economic, and environmental health from the headwaters of the Mountain West to the desert lands and sea of the American Southwest and Mexico. Governments, water users, and other interested stakeholders are currently navigating these risks on a daily basis. They are examining and implementing flexible water management strategies such as system conservation, intentionally created surplus (ICS), and changes to reservoir operations, which have been vital over the short term in minimizing water supply shortages and increasing drought response capacities in emergency situations. Near-term efforts, however, are not enough. On-going and future challenges are likely to result from the combined impacts of continued growth, the natural variation of precipitation and runoff, and the increasingly noticeable effects of changing climatic conditions and other landscape-level factors.



We must now work to forestall historic degradation, improve watershed health, and reduce hydrologic vulnerability to drought and accelerated changes in climate conditions by increasing the long-term resilience and health of the Colorado River system. Well-tested and widely implemented water conservation and efficiency efforts, as well as reductions in demand, remain an essential part of the solution. However, that approach alone will not fully address the challenge and does not typically or sufficiently include or consider broader economic, environmental, and social risks from a continued drying of the river system. The challenges confronting the Colorado River Basin require us to also direct our attention toward multifaceted strategies that protect and restore the natural infrastructure that makes up the river system we all rely on. These strategies can help the Basin adapt to, respond to, and mitigate the steady, compounding, and extreme risks of uncertain and changing water supply conditions to economies, communities, landscapes, and water resources in the region. In other words, there is an undeniable need and growing opportunity for resilience-building in the Colorado River Basin.

THE OPPORTUNITY: BUILDING RESILIENCE FOR THE COLORADO RIVER BASIN

Resilience in the Colorado River Basin is the ability to prepare for and adapt to climate shifts and extremes, including rising temperatures, increased drying, and variability in precipitation. Resilience means identifying, piloting, and implementing reliable strategies to avoid or mitigate climate-related risks to the Colorado River Basin. Improving the resilience of the Basin includes all sectors and landscapes. It includes strategies that:

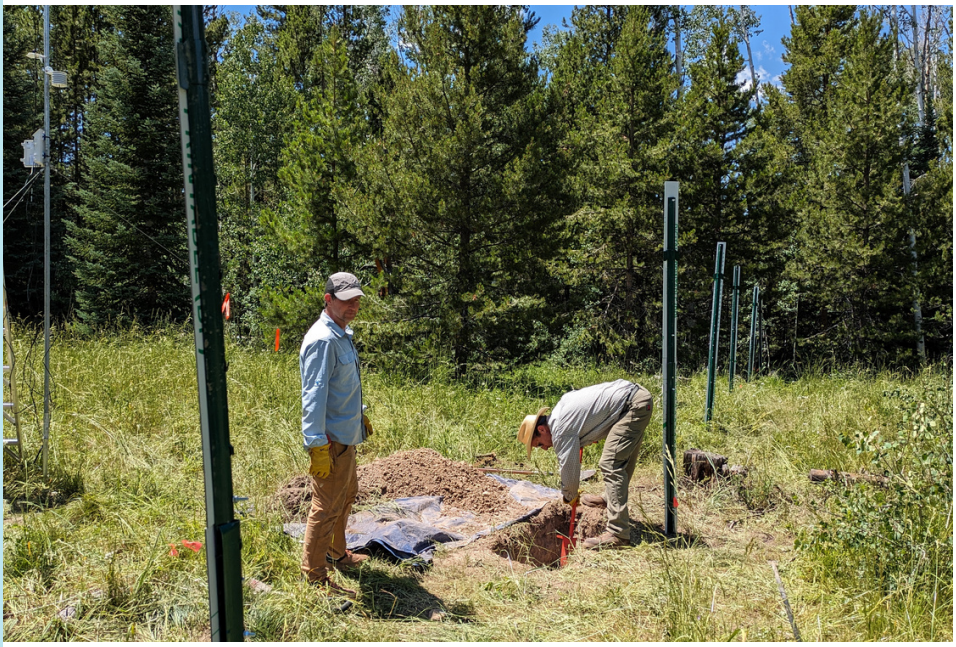
Enhance forest health through focused forest management and restoration strategies such as clearing surface fuels, restoring river and stream channels, removing invasive plant species, and conducting prescribed burns.

Restore the wetlands, meadows, riparian areas, and connected floodplains that comprise healthy watersheds across the Colorado River Basin. This includes methods like beaver-related restoration and hand-built wood and rock structures to slow river flows, recharge groundwater, and re-establish natural storage.

Improve agricultural efficiency and enable growers to thrive with less water by supporting regenerative agriculture practices, dust-suppressing cover crops, alternative crops, and investments in infrastructure upgrades like lining canals with concrete.

Boost municipal and industrial water conservation by expanding what is already working, like low-water-use appliances, leak detection systems, replacing thirsty lawns with waterwise landscaping, and incorporating water planning in development and growth decisions.

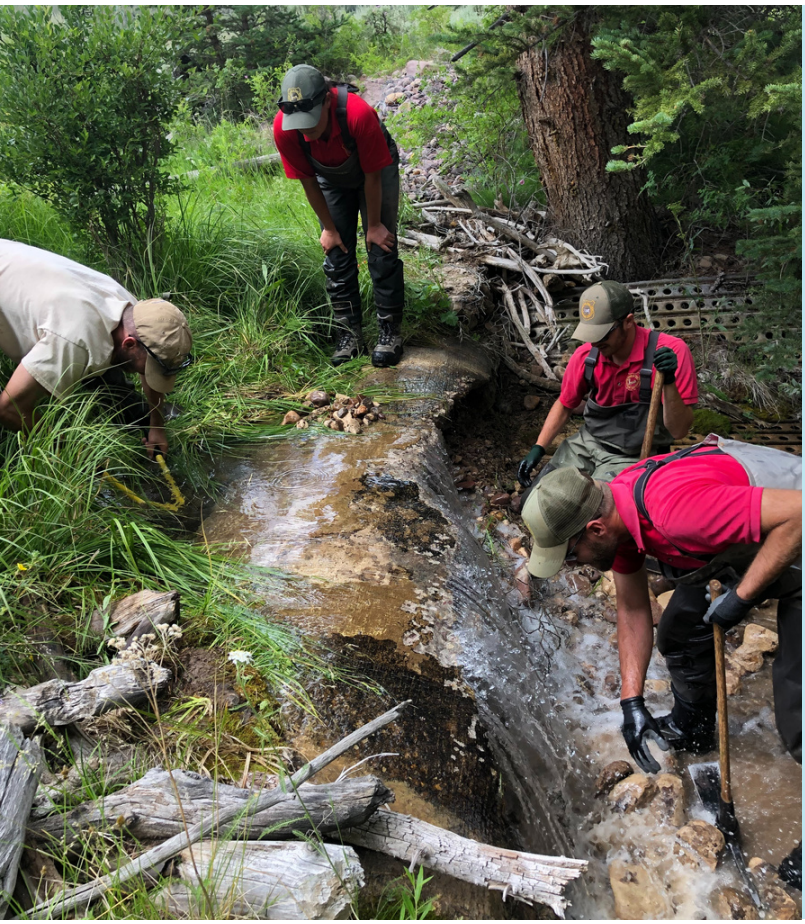
CURRENT COLORADO RIVER RESILIENCE-BUILDING INVESTMENTS



The passage of both the BIL and IRA authorized billions of dollars to mitigate risks of drought and a changing climate through resilience improvements for communities, economies, and the environment. Through these and other appropriations, federal agencies, including, but not limited to, the U.S. Bureau of Reclamation (Reclamation), are providing significant funding opportunities to help reduce the impacts of drought and other natural hazards across the West.

BIL and IRA funding is hitting the ground across the Colorado River Basin, providing an essential down payment on the investments needed to establish resilience across the region. Since the BIL and IRA were authorized, approximately $2 billion has been invested in projects across the Western United States, including the Colorado River Basin, to help adapt to the impacts of drought, improve aging infrastructure, and stretch water supplies further. Some of the most notable funding awards from Reclamation have been allocated to the following types of projects (additional information available in Appendix A):

- Water Conservation and Efficiency Projects - $224 million invested by Reclamation, some of which is invested in the Basin.
- Water Reuse and Recycling Projects - $310 million invested by Reclamation, some of which is invested in the Basin.
- Reductions in Water Use and System Conservation - more than $370 million invested by Reclamation, specifically in the Colorado River Basin.
- Infrastructure Upgrades and Repairs - almost $1 billion has been invested by Reclamation, some of which is invested in the Basin.
- Long-Term Ecosystem and Habitat Resilience Projects - more than $87 million invested by Reclamation, some of which is invested in the Basin.



In November 2023, the U.S. Bureau of Reclamation announced $51 million in grants for projects across 11 states as part of President Biden's Investing in America Agenda. Nine of the 30 selected projects are located in the Colorado River Basin, and will collectively receive more than $13 million for water conservation, management, and restoration efforts, which all improve the resilience of the Colorado River Basin. At the same time, the National Fish and Wildlife Foundation joined public partners in announcing $141 million in grants through the America the Beautiful (ATB) Challenge to fund projects that conserve, restore, and connect lands and waters and build community resilience. Three of the ATB projects will build resilience in the Colorado River Basin. A list of awarded projects in the Basin is available in Appendix B. As federal agencies continue to deploy BIL and IRA funds moving forward, it is essential that the available funding go toward these types of resilience projects.

The following projects were recently funded by investments from the BIL and are examples of the types of projects that will build long-term resilience for the Colorado River Basin. Additional projects recently funded by BIL funds are available in Appendix B.

- UNCOMPAHGRE RIVER MULTI-BENEFIT PROJECT, COLORADO:

Reclamation Award: $1,198,376

American Rivers, in partnership with the Ward Water Group and local landowners, will upgrade irrigation infrastructure and enhance aquatic and riparian habitats along one mile of the Uncompahgre River in western Colorado.

- WATER RESOURCE MANAGEMENT FOR FISH HABITAT IMPROVEMENT IN THE SAN JUAN RIVER, NEW MEXICO:

America the Beautiful Award: $4,000,000

The State of New Mexico, in partnership with the Jicarilla Apache Nation and The Nature Conservancy, will conserve 80,000 acre feet of water, increase ecosystem resilience through implementation of monitoring and adaptive management plans, and expand outreach within the Jicarilla Apache Nation and local community partners around water conservation and management of the San Juan River. The project will augment stream flow for aquatic resources and improve watershed health in the river basin while increasing water security for native aquatic species, including the Colorado pikeminnow and razorback sucker.

- SAGE CREEK WATERSHED RESTORATION FOR DROUGHT RESILIENCE AND SEDIMENT CONTROL, WYOMING:

Reclamation Award: $1,513,538

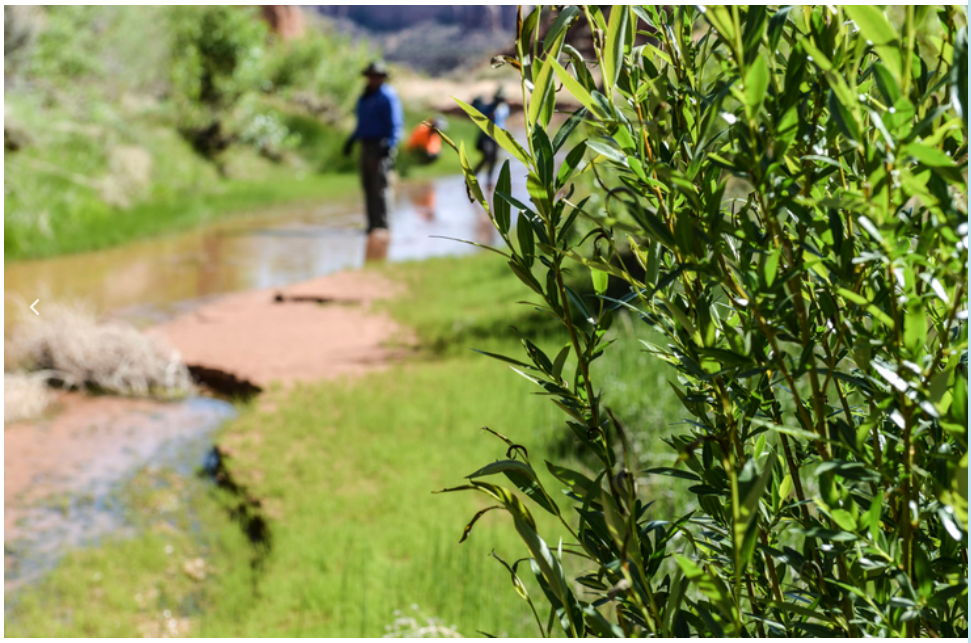
Trout Unlimited, in partnership with Wyoming Game and Fish, will complete a multi-part restoration project in the Sage Creek Watershed, located in southwestern Wyoming. The project will install 50 beaver dam analogs, 160 aggradation structures, and an aquatic invasive species barrier along a 5.6-mile stretch of Sage Creek.

- COCOPAH COLORADO RIVER LIMITROPHE RESTORATION, ARIZONA:

America the Beautiful Award: $5,000,000

The Cocopah Indian Tribe, in partnership with Audubon, will restore 431 acres of native cottonwood, willow, mesquite, and wetland habitat in the floodplain of the Colorado River Delta on the Cocopah Indian Reservation and establish a Tribal youth conservation corps. The project will perform earthwork, install irrigation for revegetation, and engage Tribal youth in the removal of invasive species to improve habitat, connectivity, and resilience of this spiritually and culturally important ecosystem to benefit at-risk species.

LONG-TERM RESILIENT INVESTMENT OPPORTUNITIES TO PURSUE



While we are seeing benefits from recent BIL and IRA investments in communities across all seven Colorado River Basin states, the full scope of challenges facing the Basin requires more coordinated investments in resilience-building efforts from the headwaters to the river's natural terminus. In other words, there is a need to strategically invest the remaining BIL and IRA funds, as well as other funding sources, to sustain and scale up the resilience building kickstarted by federal funding awarded thus far. Now is the time to coordinate and direct remaining and future funding opportunities to advance more comprehensive efforts to mitigate natural hazards, help communities, agriculture, and the natural environment adapt, and combat the urgent, broad, and diverse challenges facing the Colorado River Basin.

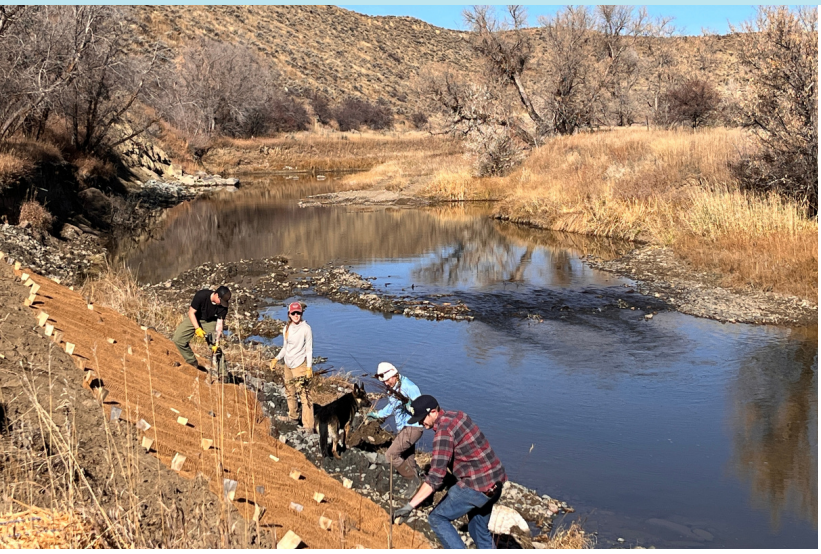
Conservation organizations and other stakeholders are working throughout the Basin to identify strategic opportunities for pursuing resilience-building efforts. To ensure more coordination around resilience projects and reduce the potential for mere random acts of resilience, we must advance investments for projects that include multi-benefit and ecosystem projects at the same pace and scale of the growing needs and opportunities.

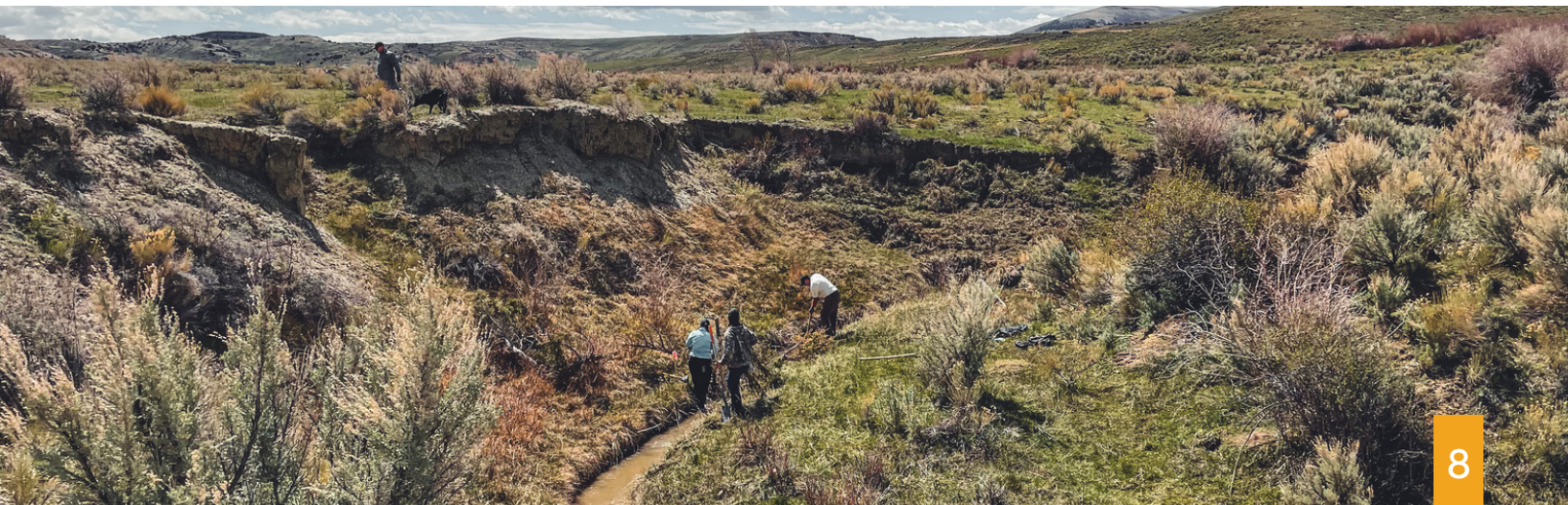
"Now is the time to coordinate and direct remaining and future funding opportunities to advance more comprehensive efforts to mitigate natural hazards, help communities, agriculture, and the natural environment adapt, and combat the urgent, broad, and diverse challenges facing the Colorado River Basin."

Specific examples of resilience-building projects, including multi-benefit and ecosystem restoration projects, that are ready for investment in each of the seven Basin states are listed on pages 9-12. They reflect the types of resilience-building activities that remain ready for continued investment across the Basin.

RESILIENCE PROJECTS READY FOR INVESTMENT IN THE COLORADO RIVER BASIN

"These strategies can help the Basin adapt to, respond to, and mitigate the steady, compounding, and extreme risks of uncertain and changing water supply conditions to economies, communities, landscapes, and water resources in the region. In other words, there is an undeniable need and growing opportunity for resilience-building in the Colorado River Basin."





ARIZONA

- Aravaipa Creek Erosion Control: The Aravaipa Watershed Conservation Alliance, alongside partners, is in the planning stage of installing beaver dam analogs and/or rock gabions in the upper reaches of Aravaipa Creek. This is to mitigate the sediment runoff that greatly decreases water quality and impacts hydrological functioning in the creek after large, seasonal rain events that characterize the Southwest. The group is also in the planning phase of reintroducing beavers to the region.
- Las Cienega Creek Restoration: The U.S. Bureau of Land Management - Gila District, in partnership with Arizona Game and Fish and other partners, is in the planning stage of developing plans for beaver dam analog installations as well as beaver reintroduction on Las Cienega Creek.
- Lower Salt River Restoration Project: Partners across the region are working together on a riparian restoration project located on the Lower Salt River within the Mesa Ranger District, Tonto National Forest. The project aims to protect one of the few remaining low elevation desert riparian vegetation communities in the state. The project will begin by restoring areas affected by the Cactus Fire, with a long-term goal of restoring the entire 14 miles of the Lower Salt River Recreation Area.

CALIFORNIA

- Bombay Beach Wetland Enhancement Project: East of Bombay Beach, a confluence of surface water flow and groundwater discharge has created wetlands along the exposed shorelines of the receding Salton Sea. This project will stabilize, protect, and enhance existing wetland habitat areas for birds and desert pupfish, expand wetland habitat on the adjacent playa where possible, expand the natural recruitment of vegetation to provide upland habitat, and promote dust control as an ancillary public health benefit.

COLORADO

- Kawuneeche Valley Restoration Collaborative (KVRC): In 2020, the KVRC was formed to address ongoing environmental changes taking place in the Kawuneeche Valley. The group includes the National Park Service, Rocky Mountain National Park (RMNP), and the US Forest Service, along with Grand County, Northern Water, The Nature Conservancy, Colorado River District, Rocky Mountain Conservancy, the Town of Grand Lake, and Colorado State University. The KVRC is committed to using an inclusive process to develop comprehensive and ambitious restoration plans for implementation with local partners. As part of KVRC, site-specific restoration projects will occur in the Kawuneeche Valley over several years. Four sites within RMNP have been identified as highly suitable for restoration. Other opportunities to improve ecological function and water quality also exist on private lands within the valley. KVRC restoration efforts could bring numerous benefits to the region, including: improving water quality, accommodating healthier aquatic life and habitat surrounding the river, creating natural wildfire lines, courtesy of renewed overbank flooding, strengthening the valley's overall resilience to climate change, and enhancing aesthetics and recreational value.

- Ocate Properties Irrigation and Channel Improvement: This project will involve the coordination between the ranch owner, Natural Resources Conservation Service (NRCS), U.S. Fish and Wildlife Service (Partners for Fish and Wildlife), and Trout Unlimited to improve irrigation efficiency, wildlife habitat, and watershed health on Cebolla Creek, a tributary to the Gunnison River. Project partners will pipe 750 feet of existing irrigation ditch, construct bank stabilization revetment structures in Cebolla Creek, install riparian fence to manage grazing, restore the woody species component in the riparian plant community, and gain livestock watering facilities away from the creek.

- Alternative Forage Project - Phase 2: Building on Phase 1, Phase 2 of the Alternative Forages Project, a collaboration between Colorado State University, the Land Institute, Colorado agricultural producers, Trout Unlimited, The Nature Conservancy, and American Rivers, will subject research plots of established alternative forage crops to different water supply regimes in order to assess their drought resilience and productivity under deficit irrigation, as well as to assess how much water is saved when irrigation is withdrawn or reduced. This project will make important contributions to understanding the role alternative forages could play in helping our region's farms and ranches adapt to a future with increasingly limited and uncertain water supplies. It will also pave the way for wider participation in conserved consumptive use programs if the results demonstrate that these crops recover well after periods without irrigation.

NEVADA

- Lower Las Vegas Wash Stabilization Project: Through this project, the Southern Nevada Water Authority and its partners seek to mitigate the impacts of drought and improve water supply and ecosystem conditions along the limitrophe between Las Vegas Valley and Lake Mead. This project would fund the design, permitting, and implementation of Weirs 6 and 7 as part of a larger stabilization program to protect existing infrastructure, restore surrounding wetlands, and improve the quality of water flowing into Lake Mead and used by the southern Nevada region.

- Bunkerville Irrigation Company Diversion Re-Design: This project is seeking funding to complete a scoping study to redesign the Bunkerville Irrigation Company diversion to increase instream flows in the Virgin River and reduce irrigation canal and diversion maintenance.

NEW MEXICO

- Headwaters of the Middle Fork of the Gila River Post Fire Rehabilitation: In 2012 the headwaters of the Middle Fork of the Gila River was devastated by the Whitewater Baldy Fire. In the aftermath, NGO and agency partners joined forces to create a watershed based restoration plan. Currently the partners are planning and seeking funding to restore the river corridor using low-tech processed-based restoration and hardscaped floodplain reconnection techniques with the long-term goal of beaver reintroduction in wilderness portions of the watershed. The suite of projects helps with grazing management, protects State of New Mexico watershed investments, and reinforces and rehabilitates the Gila River and its tributaries against degradation from fire damage.

- San Juan River Ecosystem Restoration Project: This project will support habitat restoration projects in the San Juan River to benefit two endangered fish species, the Colorado pikeminnow and razorback sucker. This project will help the San Juan River Basin Recovery Implementation Program identify sites and complete design work for nursery habitat restoration projects that are critical to recovering endangered fish and supporting all water users in the San Juan River Basin, including recreational anglers.

- Water Resource Management for Fish Habitat Improvement in the San Juan River, New Mexico: As described in more detail above, this project will increase water security and augment stream flow for aquatic resources and improve watershed health in the San Juan River Basin in New Mexico, Colorado, and Utah. Additional funding will support ongoing implementation and monitoring.

UTAH

- Upper Price River Watershed Restoration Project: This project features riparian area and wetland restoration, timber stand improvement, shaded fuel breaks, fuels reduction, noxious weed control, and tree planting. These projects connect private, state, and federal land ownership with collaborative project implementation, long-term project planning, and vision.

- Efficient Water Management for People and Wildlife: Partners will implement three integrated, locally led projects on the Virgin River, Utah, including 1) modernization of Hurricane's water delivery systems, 2) Washington City's return flow system, and 3) restoration of a key segment of river habitat for three federally listed species (woundfin, Virgin River chub, and southwestern willow flycatcher). The projects provide more efficient water management in a critically water-limited area with direct benefits to agricultural producers and the local community while also addressing vital habitat needs for wildlife. Partners include the NRCS, Washington County Water Conservancy District, Hurricane City, Washington City, Washington County, Washington County Flood Control Authority, Utah Division of Wildlife Resources, Virgin River Program, and The Nature Conservancy.

- Willow Creek Water Riparian and Riverscape Restoration Project: Restoration of a 969 square mile watershed that includes the U.S. Bureau of Land Management, State of Utah, and Northern Ute Tribal lands through low-tech processed-based restoration techniques. This restoration work will protect native fish species, reconnect floodplains and water tables, and recreate historic wetlands.

- Natural Distributed Storage in Indian and N. Cottonwood Creeks (Dugout Ranch/Bears Ears National Monument): This project addresses overall watershed health by improving water quality conditions, improving soil conditions, increasing floodplain functionality, increasing streambank stability, decreasing fire hazards, increasing native plant diversity and densities, and improving wildlife habitat. Indian Creek and Hart's Draw watersheds comprise a total of about 295,000 acres of private and public lands with elevation ranging from 3,413 m (11,200 ft) in the Abajo Mountains to 1,190 m (3,904 ft) at the confluence of Indian Creek and the Colorado River.

WYOMING

- Upper Green Wet Meadow Restoration: The Nature Conservancy (TNC) has long partnered with the Sublette County Conservation District (SCCD) on natural resource issues and projects in the Upper Green River Basin. Through this partnership, both groups recognized a need for increased capacity at the local level to implement low-tech process-based wet meadow restoration. TNC recently secured funding to support a full-time SCCD employee for five years to coordinate on-the-ground project implementation. This new hire will work with a variety of state and federal agencies, along with private landowners to accomplish this task. Additional funds are needed to support project design, permitting, and construction.

- Green River Watershed Restoration: The U.S. Bureau of Land Management, U.S. Fish and Wildlife Service, Wyoming Game and Fish Department, county conservation districts, private landowners, and other partners have compiled a package of 30+ projects in the Green River that will collectively increase ecosystem resilience at a landscape scale using low-tech processed-based restoration techniques and riparian planting.

- Modified Irrigation Strategies: The Nature Conservancy is working with landowners and water regulators in the state to identify potential adaptations to existing irrigation strategies for increased drought resiliency. One project moving forward, designed in conjunction with the University of Wyoming, Wyoming State Engineer's Office, and local consultants, aims to study the impact on water use under night watering scenarios. This includes a water balance study for plant use and losses, such as groundwater percolation or surface runoff, as well as information on the logistics and costs of converting pivots to enable night watering.

- Headwaters of the Colorado Initiative: The Headwaters of the Colorado (HOC) Initiative is a nascent watershed group comprised of diverse stakeholders seeking to create resilient and functioning headwaters forests in the Medicine Bow and Routt National Forests of Wyoming and Colorado through science-based ecosystem planning, coordinated partnerships, and collaboration across jurisdictional boundaries. The watershed group is well-positioned to address multiple interrelated social and ecological challenges in one of the primary headwater systems of the Colorado River Basin. Additional funding will support the development, design, and implementation of watershed restoration activities that will improve wildlife habitat, regenerate aspen forest stands, reduce fuels, prioritize multi-stakeholder objectives, and improve drought resilience in the headwaters of the Yampa and Little Snake rivers. This work also aims to integrate findings from a related research effort in the Sierra Madre led by The Nature Conservancy. Findings from this effort will help the HOC integrate the most up to date climate adaptation science around the forest/water nexus into their management planning and on-the-ground actions.

FUNDING THE FULL PROJECT LIFECYCLE

Additional investments for resilience projects must fund the full project lifecycle, including supporting the capacity needs of agencies and organizations implementing projects. Investments should include early stage project work such as planning, design, and engineering as well as continuing project work, such as monitoring and measurement. Allowing BIL and IRA funds to contribute to the entire project lifecycle will help address barriers to accessing federal funds, such as lack of capacity and limited funds for project development. Investing in capacity will accelerate the pace and scale of resilience projects in the Basin.

PROJECT LIFECYCLE

1 INITIAL DEVELOPMENT

- Bringing partners on board
- Site visits and meeting with partners
- Define goals and objectives
- Develop analysis and conceptual design

2 PLANNING & DESIGN

- Contract with consultant for survey and design
- Refine goals and objectives with stakeholders
- Obtain cost estimates
- Map out funding plan

3 FUNDRAISING & PERMITTING

- Develop final construction ready design plan
- Write and submit grants, apply for permits
- Complete pre-project monitoring
- Source materials

4 CONSTRUCTION & IMPLEMENTATION

- Select contractor via a competitive process
- Administer contracts and insurance
- Volunteer days and site visits
- Publicity and outreach

5 MONITORING & MAINTENANCE

- Post-construction survey
- Grant reports for funders
- Three years of post-construction monitoring
- Maintenance and follow-up

APPENDIX A - BIPARTISAN INFRASTRUCTURE LAW AND INFLATION REDUCTION ACT AWARDS FROM THE U.S. BUREAU OF RECLAMATION

SOME OF THE MOST NOTABLE FUNDING AWARDS FROM RECLAMATION INCLUDE:

WATER CONSERVATION AND EFFICIENCY PROJECTS - $224 MILLION INVESTED BY RECLAMATION, SOME OF WHICH IS INVESTED IN THE BASIN

- Part of $140 million for water conservation and efficiency projects from Reclamation's WaterSMART Program in April 2023 supported projects in the Basin, funded by the BIL.
- Part of the $84 million to support innovative drought resilience efforts, such as groundwater storage, rainwater harvesting, aquifer recharge, and water reuse will be directed to the Colorado River Basin.

WATER REUSE AND RECYCLING PROJECTS - $310 MILLION INVESTED BY RECLAMATION, SOME OF WHICH IS INVESTED IN THE BASIN

- Part of $310 million for the planning, design, and construction of water reuse projects across the Western U.S., including in the Colorado River Basin.

LONG-TERM ECOSYSTEM AND HABITAT RESILIENCE PROJECTS - MORE THAN $87 MILLION INVESTED BY RECLAMATION, SOME OF WHICH IS INVESTED IN THE BASIN

- Part of $51 million for water resources and ecosystem health funded by Reclamation's WaterSMART Program in November 2023, funded by the BIL.
- Part of $36.1 million for water resources and ecosystem health, partially funded by Reclamation's WaterSMART Program in 2022 (BIL funding was $26.7 million of total funds).

REDUCTIONS IN WATER USE AND SYSTEM CONSERVATION - MORE THAN $370 MILLION INVESTED BY RECLAMATION, SPECIFICALLY IN THE COLORADO RIVER BASIN

- $64 million in water conservation agreements in Arizona, funded by the IRA through the Lower Colorado River Basin System Conservation and Efficiency Program.
- $77.6 million in new water conservation and efficiency investments through an agreement with the Imperial Irrigation District.
- Up to $233 million in water conservation funding for the Gila River Indian Community for investments through 2025.
- Eight new System Conservation Implementation Agreements in Arizona that will commit water entities in the Tucson and Phoenix metro areas to conserve up to 393,000-acre feet of water in Lake Mead through 2025.

INFRASTRUCTURE UPGRADES AND REPAIRS - ALMOST $1 BILLION HAS BEEN INVESTED BY RECLAMATION, SOME OF WHICH IS INVESTED IN THE BASIN

- $83 million for the Gila River Indian Community's Reclaimed Water Pipeline Project to expand water reuse and increase Colorado River water conservation.
- $50 million over the next five years to improve key water infrastructure and enhance drought-related data collection across the Upper Colorado River Basin.
- Part of $240 million to repair aging water infrastructure will support projects in the Basin.
- Part of $585 million to repair aging infrastructure and enhance drought resilience will be directed to the Colorado River Basin.
- Part of the $20 million in new small surface and groundwater storage investments will be invested in the Basin.

APPENDIX B - RESILIENCE PROJECTS FUNDED BY THE BIPARTISAN INFRASTRUCTURE LAW

WATERSMART ENVIRONMENT WATER RESOURCES PROJECT GRANT AWARDS

- Surface Water Conservation for Drought and Climate Resilience in the Altar Valley Watershed: The Altar Valley Conservation Alliance, in partnership with the Pima County Regional Flood Control District, will use a series of nature-based features across 8,985 acres of the Altar Wash watershed, southwest of Tucson, Arizona, to slow flows, improve groundwater infiltration, and create surface water habitat for wildlife. Reclamation Award: $1,213,809
- Uncompahgre River Multi-Benefit Project: American Rivers, in partnership with the Ward Water Group and local landowners, will upgrade irrigation infrastructure and enhance aquatic and riparian habitats along one mile of the Uncompahgre River in western Colorado. Reclamation Award: $ 1,198,376
- Riparian Restoration and Infrastructure Improvements to Better the Ecological Processes of the Mancos Watershed: The Mancos Conservation District, in partnership with the Town of Mancos, will implement a multi-benefit project consisting of a suite of agricultural infrastructure improvements and nature-based solutions along the Mancos River, a tributary of the San Juan River, in southwestern Colorado. Reclamation Award: $2,482,686
- Roan Creek Fish Barrier and Diversion Infrastructure Upgrade: The Middle Colorado Watershed Council, working in partnership with Garfield County, will install a fish barrier to prevent non-native fish migration and upgrade a diversion structure on Roan Creek, in western Colorado. Reclamation Award: $746,423
- Nannice Canal Diversion and Fish Passage Project: The Southern Ute Tribe, in partnership with the Bureau of Indian Affairs and The Nature Conservancy, will implement the Nannice Canal Diversion and Fish Passage project on the Southern Ute Indian Reservation in southwestern Colorado, which will restore river connectivity, improve fish passage, and eliminate fish entrainment during low flows while continuing to allow the diversion of Nannice Canal's decreed water. Reclamation Award: $651,920
- 4 Fish Passage/ Irrigation Diversion Upgrade Projects on Elk Creek-a tributary to the Colorado River: Trout Unlimited and the Middle Colorado Agriculture Collaborative will upgrade, relocate, or combine six diversion structures to remove instream barriers to fish passage in the Elk Creek west of Glenwood Springs, Colorado, which will open approximately five miles of aquatic habitat in Elk Creek to fish passage. Reclamation Award: $2,999,595
- Farmer's Ditch Improvement Project: The Western Slope Conservation Center, in partnership with North Fork Farmer's Ditch Association, located in west-central Colorado, will modernize the Farmers ditch diversion and headgate structures to improve upstream fish passage, increase diversion efficiency, and improve safety for boaters. Reclamation Award: $1,594,799
- Sage Creek Watershed Restoration for Drought Resilience and Sediment Control: Trout Unlimited, in partnership with Wyoming Game and Fish, will complete a multi-part restoration project in the Sage Creek Watershed, located in southwestern Wyoming. The project will install 50 beaver dam analogs, 160 aggradation structures, and an aquatic invasive species barrier along a 5.6-mile stretch of Sage Creek. Reclamation Award: $1,513,538

- Muddy River Riparian Corridor Improvements at Warm Springs Natural Area: The Southern Nevada Water Authority will protect the Warm Springs Natural Area, a 1,250 acre property located in southern Nevada. This project will widen the riparian corridors along 0.3 miles of the mainstem of the Muddy River and establish mesquite bosques along the corridor, resulting in the creation of 12 acres of new habitat, which will increase habitat for listed species, improve hydrologic conditions, lessen wildfire risk, and reduce erosion and sedimentation during flood events while protecting downstream habitat from drought impacts. Reclamation Award: $743,329

Note, additional projects funded by WaterSMART Environment Water Resources Project grants in 2022 are available here.

AMERICA THE BEAUTIFUL GRANTS

- Cocopah Colorado River Limitrophe Restoration: The Cocopah Indian Tribe, in partnership with Audubon, will restore 431 acres of native cottonwood, willow, mesquite, and wetland habitat in the floodplain of the Colorado River Delta on the Cocopah Indian Reservation and establish a Tribal youth conservation corps. The project will perform earthwork, install irrigation for revegetation, and engage Tribal youth in the removal of invasive species to improve habitat, connectivity, and resilience of this spiritually and culturally important ecosystem to benefit at-risk species. America the Beautiful Award: $5,000,000
- Water Resource Management for Fish Habitat Improvement in the San Juan River: The State of New Mexico, in partnership with the Jicarilla Apache Nation and The Nature Conservancy, will conserve 80,000 acre feet of water, increase ecosystem resilience through implementation of monitoring and adaptive management plans, and expand outreach within the Jicarilla Apache Nation and local community partners around water conservation and management of the San Juan River. The project will augment stream flow for aquatic resources and improve watershed health in the river basin while increasing water security for native aquatic species, including the Colorado pikeminnow and razorback sucker. America the Beautiful Award: $4,000,000
- Adaptive Management of Water Resources in the Fort Huachuca Sentinel Landscape: The City of Sierra Vista, in partnership with The Nature Conservancy, will protect and restore groundwater essential for sustaining 43 miles of the U.S. Bureau of Land Management's San Pedro Riparian National Conservation Area in the Fort Huachuca Sentinel Landscape. The project will coordinate hydrologic and ecological modeling to support essential groundwater recharge projects needed to sustain hydrologic function for the riparian ecosystem. America the Beautiful Award: $1,050,000
- Assessing and Prioritizing Aquatic Connectivity on U.S. Forest Service Lands: American Rivers will inventory and prioritize opportunities for aquatic connectivity on U.S. Forest Service lands in Regions 3, 4, 5, 8, and 9 to maximize reconnection, restoration, and enhancement of aquatic habitat. The project will expand knowledge of aquatic fragmentation on USFS lands, prioritize projects to increase connectivity, assess feasibility of rectifying select high-priority dams, and bolster USFS and other land steward capacity to address barrier impacts on fish passage, biodiversity, and safety. America the Beautiful Award: $802,900

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