



# WESTERN RIVERS ARE IN CRITICAL CONDITION.

We need resilient management solutions more urgently than ever.

The Colorado River Basin is in critical condition with reduced river levels threatening the supply of water to seven Western states for drinking water, agriculture, and energy production. Proposed solutions are primarily focusing on how to reduce the Basin's overall water demand and realistically redistribute the region's shrinking water supplies. While these solutions are critically important to stabilizing the water supply system, they will not be enough to address the more significant underlying issue of a hotter and drier future. Climate change is exacerbating a century of mismanagement, driving a decline in watershed and river health across the basin, leaving many rivers and streams on the brink of collapse. Across the West, we are seeing more and more communities struggling with responding to reduced amounts of water in their rivers, more frequent forest fires, and increased risks of floods. We urgently need to do more to ensure our communities and watersheds within the Colorado River Basin are resilient, now and into the future.

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**Basin-wide adoption of Integrated River Management can strengthen both community and river resilience.**

**An emerging tool in the resiliency adaptation toolbox is integrated river management, or IRM, which aligns the management of water resources, land use changes, and hazards to improve benefits for communities and the environment in an equitable manner.** Over the past thirty years, the science guiding how we manage our rivers has been evolving to emphasize the river as a whole system. Past approaches prioritized constraining the river into a stable and predictable channel to control the delivery of water downstream and reduce chances of the river overflowing its banks, flooding adjacent communities. This approach has devastated river health and degraded the multitude of essential ecosystem benefits (see Graphic 1) that sustain our communities, economies, and the environment.



## BENEFITS OF A HEALTHY RIVER SYSTEM

A healthy river corridor provides a multitude of benefits for communities and natural systems. These benefits are only possible when natural river processes are not disrupted by human intervention such as levees, diversion structures, and urban encroachment. When these processes are disrupted, there is a decline in overall river health and loss of community benefits.



GRAPHIC 1

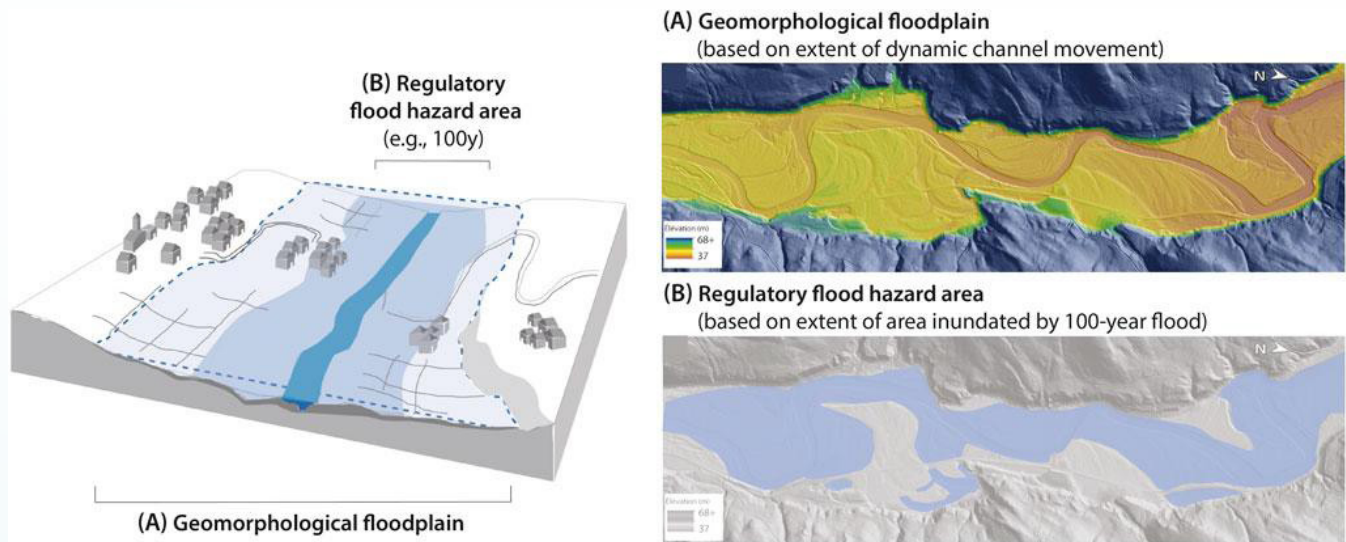
To maintain a healthy, functioning river requires managing the entire *river corridor*—the river channel, all of the floodplain, the riparian areas and wetlands, and the connected aquifer—as a single interdependent system. Rather than trying to change the way the river behaves, IRM acknowledges that river systems are dynamic and require space within the river corridor for the natural processes including high and low flows, flood water storage in adjacent floodplains, and sediment deposition and transport.

There are many names emerging for this new paradigm—nature based solutions, integrated river basin management, integrated floodplain management, and more—but the underlying tenet

is the same. Rivers need adequate space for the natural processes that create the multiple benefits our communities, economies, and the environment rely upon to be healthy and resilient.

IRM aligns planning, policy making, and projects to promote the continuation and restoration of these natural processes. IRM emphasizes three core objectives to ensure a healthy, functioning river. First, preserve and restore the capacities of rivers to safely withstand floods. Second, maintain and restore floodplains and wetlands to absorb high river levels. Finally, protect and regenerate the plant life along the river corridor to slow water flow, filter pollutants, recharge the aquifer, and provide habitat.





GRAPHIC 2

### WHAT IS THE RIVER CORRIDOR?

A river corridor is a defined management area that recognizes the interdependent relationship between river processes and the associated ecosystem services. Advances in river science have helped identify the physical extent of a river corridor required for maintaining river processes and ecosystem services. High resolution satellite imagery is used to identify the natural geomorphological floodplain where natural processes occur. This extent of the natural floodplain (A) generally occupies a larger landscape than the FEMA regulatory floodplain (B), requiring communities to broaden how they plan for and manage land within the river corridor.

Source: Serra – Llobet et al 2022

## We need to rapidly build capacity across the Colorado River Basin for wide-scale adoption of Integrated River Management.

The decisions that state and local governments are making today about how our river corridors are developed and managed will largely determine how resilient they are to the growing threats of prolonged drought, declining runoff, and catastrophic fire and flooding. We are fortunate that local governments have considerable legal authority and that many of the tools to support healthy rivers and protect our communities are already available. These tools—including land acquisition and conservation easements, land use regulatory tools, and private and public land management practices—can be applied strategically to protect and restore land within the river corridor, helping to preserve and improve river health and floodwater conveyance. Yet, despite a growing awareness of the benefits of integrated river management

across the Colorado River Basin, IRM implementation in the Basin is not keeping up with the growing threats of a hotter and drier future. We need to do more. And fast.

River Network is proposing to meet this significant challenge with a new program, **River Smart Communities**, to support local leaders working to ensure their communities and rivers are healthy and resilient into the future. The program will accelerate the adoption of IRM across the Colorado River Basin, focusing on opportunities for strengthening implementation within the four interdependent sectors of emergency management and hazard mitigation planning, community and land use planning, land management, and water resources management.



GRAPHIC 3

## Opportunities for Strengthening the Adoption of Integrated River Management Across Sectors

Integrated River Management promotes collaboration across sectors to align plans, policies, and projects to manage the river corridor for greater community resilience and river health.

### EMERGENCY MANAGEMENT AND HAZARD MITIGATION PLANNING

Across the Colorado River Basin, wildfires, flooding and drought are only expected to increase in the future. Natural processes offer a lower cost alternative that complement traditional hazard mitigation and can greatly enhance both community safety and river health. Hazard plans tend to overly rely on a narrow set of strategies for hardening structures, particularly within the regulatory floodplain. Instead, hazard planning should be looking to identify opportunity zones within the river corridor where projects and policies can significantly reduce the impact and costs of future disasters. Fluvial hazard zone mapping is increasingly being used to identify where flooding and/or erosion may be a threat to buildings, roads, and other community infrastructure; where development pressures along the river are encroaching on the floodplain and putting residents in harm's way; and where floodplain connectivity can be maintained or restored. As flood risks increase across the Colorado River Basin, there is significant opportunity to integrate new methodologies and more robust strategies for greater resilience, but it requires bringing in a wider range of partners with a broader knowledge of river corridor management.

**FLUVIAL HAZARD ZONE MAPPING:** the fluvial hazard zone is the area a stream has occupied in recent history, may occupy, or may physically influence as it stores and transports water, sediment, and debris

### COMMUNITY AND LAND USE PLANNING

Land use planning determines where future development is located and how, if any, mitigation to natural resources is required. Without consideration of the river corridor in a community's development code, chances of protecting the river's natural processes that are beneficial to riverside communities are severely compromised. Local governments sometimes lack the capacity to develop and apply the tools that are already available to them to successfully manage the river corridor, often deferring to the minimum requirements for the 100-year floodplain as their only tool. Not accessing the entire toolbox available to local governments for managing the river corridor threatens both public safety and river health.

### LAND MANAGEMENT

Public lands and private land stewardship are where rehabilitation of a river's floodplain functions and benefits occurs. Floodplain land stewardship recognizes that flooding is a natural process with many ecosystem services—like floodwater conveyance, improved quality of life, water purification, aquifer recharge and wildlife habitat restoration—and it seeks to capitalize on those benefits through intentional land management. Due to the increase in devastating wildfires, significant funding is now available for forest health. This creates an incredible opportunity to link river corridors to fire mitigation, flood risk reduction, and habitat restoration. While the majority of this work is occurring on public lands, there are also multi-benefit projects emerging with willing landowners. Finding better ways to scale up and connect these collaborative projects for greater impact within river corridors presents significant opportunities for enhancing public safety, river health, and community resilience.

### WATER RESOURCES MANAGEMENT

Water managers are increasingly recognizing the importance of restoring rivers, natural, beneficial processes to improve drought resilience and sustain a reliable water supply for future generations. Water resource managers benefit from partnerships with land and watershed managers where they can collaborate on projects to improve the health of the watershed, particularly the ways water moves from underground, into the riverbed, and throughout the surrounding lands.

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## River Network has the knowledge, skills, and relationships to provide the support that communities need.

As the leading national organization working to grow and strengthen a transformational national network of water, justice, and river advocates, River Network is well positioned to develop a place-based technical assistance program to accelerate the adoption of IRM. River Network foresees **River Smart Communities** leveraging a full range of strategies applied across the state, regional, and/or local scales including:

- 1. SUPPORTING LOCAL FLOODPLAIN MANAGEMENT LEADERS** by raising awareness and strengthening professional competencies through training, peer learning, and knowledge resources.
- 2. STRENGTHENING GOVERNMENTAL INSTITUTIONS** through building technical competencies, political will, and dedicated funding.
- 3. CREATING DECISION SUPPORT SYSTEMS, FRAMEWORKS, AND TOOLS** to inform decision making and accelerate action across regions. This includes operational frameworks with replicable steps and more robust GIS and financial tools.
- 4. RESEARCH AND COMMUNICATION THAT SUPPORTS POLITICAL ACTION AND POLICY CHANGE** for elected officials, local government staff, and NGOs when faced with concerns about the economy, property rights, and the financial implications of policy reform.
- 5. PROFESSIONAL PROCESS, PARTICIPATION, AND FACILITATION SUPPORT** for on-the-ground projects to guide to guide a complex project to completion, either for the purposes of demonstration projects or to advance towards desired project metrics for completed projects.



### If successful, River Network imagines River Smart Communities across the Colorado River Basin that will have successfully:

- Identified community leaders to champion IRM as an important strategy for community and river resilience.
- Incorporating the concept of “*giving rivers room*” during water, land use, and hazard planning by considering multiple co-benefits including risk reduction, ecological protection, enhanced sense of place, and returning water to aquifers.
- Possess the knowledge and capacity to work collaboratively to protect and rehabilitate the river corridor and watershed.
- Adopted local government policies for the river corridor that result in measurable river health outcomes and reduced risks to people.
- Implemented on-the-ground projects in the river corridor that result in multiple co-benefits.





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## How Can River Network Be Successful in Accelerating IRM for Greater Resilience?

River Network is soliciting guidance from partners in federal, state, and local governments as well as NGOs and professional associations on how we can most effectively promote and support integrated river management. Specifically, River Network would like to collaboratively explore:

1. What do you see as some of the biggest barriers to wide-scale adoption of IRM?
2. How do we work together to raise awareness and message the value and benefits of IRM as a climate resiliency strategy?
3. How do we promote alignment across interrelated sectors of policy making, planning, funding streams, and the multitude of program initiatives to facilitate the rapid community uptake of IRM?
4. What program interventions are needed to build capacity of non-governmental organizations, community groups, and local governments to accelerate the adoption of plans, policies, and best management practices?
5. How can pilot projects be used to demonstrate and refine community processes and decision-making tools that will support the adoption of IRM?
6. What should be the characteristics that define a successful River Smart Community?
7. What role should River Network play in supporting local organizations and governments with becoming River Smart?
8. How River Smart is your community now? What challenges do you have? What would help you?
9. How should River Network involve communities who are most impacted by flood hazards and land use decisions to ensure they have a voice and a role in IRM?

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River Network invites you to a conversation about how we can work together to promote better approaches to river management.

### Contact Us

To discuss your ideas and thoughts, please reach out to:  
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