

ACTIONABLE SCIENCE

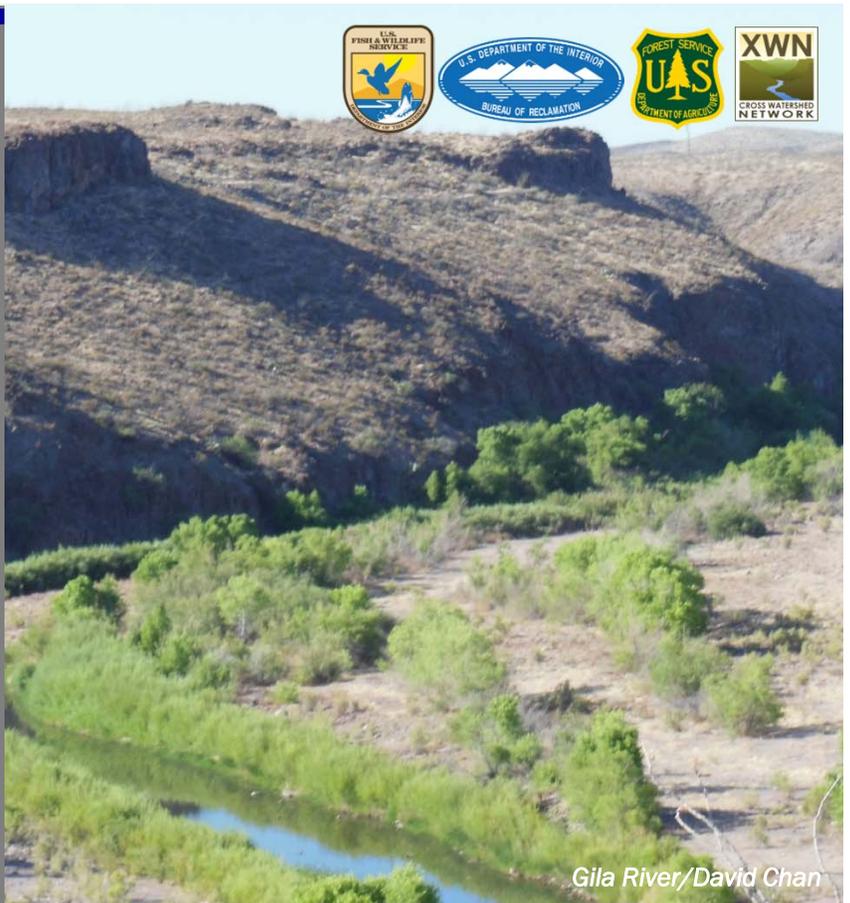
Water Resources Management Planning: A Demonstration on the Upper Gila River



COLLEGE OF AGRICULTURE & LIFE SCIENCES
COOPERATIVE EXTENSION

**WATER RESOURCES
RESEARCH CENTER**

The Gila River originates in the Mogollon Mountains of New Mexico and flows west across Arizona to join the Colorado River near Yuma. Above the San Carlos Reservoir, the Upper Gila River Watershed flows free of large dams, and sustains several perennial stretches that provide habitat for a large number of plants and animals. The river is also an essential source of water for municipal and agricultural water users. The University of Arizona Water Resources Research Center (WRRC), the Gila Watershed Partnership (GWP), and University of Arizona Cooperative Extension worked to develop tools to support water resources planning for sustained environmental and human use in the Upper Gila River Watershed.



KEY ISSUES ADDRESSED

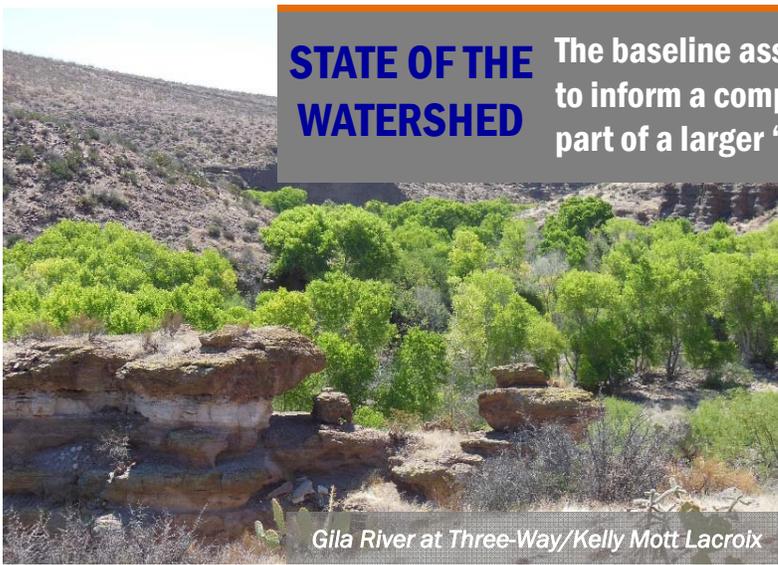
Communities in western North America face increasing demand on water resources exacerbated by stress from projected drought and climate conditions. The Upper Gila River Watershed supports a diversity of economic activities and ecological communities that depend on a healthy and functioning watershed. However, long-term sustainability of human livelihood and natural resources requires collaborative planning. Water resources planning allows stakeholders to collectively address uncertainties and develop strategies to sustain human and environmental values into the future. New planning tools and models are needed to effectively and consistently account for all water users, including human communities, agriculture, industry, and wildlife.

PROJECT GOALS

- Develop and demonstrate a methodology for developing baseline assessments and forward-looking scenarios needed to support water resource planning and management that incorporates both human and environmental water needs in the Upper Gila River Watershed
- Provide online resources and engagement strategies to support communities in planning for secure water supplies now and into the future

STATE OF THE WATERSHED

The baseline assessment and scenario development will be used to inform a comprehensive water supply and demand study as part of a larger “State of the Watershed” assessment.



Gila River at Three-Way/Kelly Mott Lacroix

PROJECT HIGHLIGHTS

Atlas of the Upper Gila Watershed: The project team assembled 62 unique spatial datasets into a single geospatial database of baseline conditions for the Upper Gila River Watershed. This database was compiled into an atlas of watershed resource maps accompanied by narrative text in a format accessible to stakeholders without GIS technologies.

Modeling Watershed Change: As part of the Atlas, the project team built an Automated Geospatial Watershed Assessment (AGWA) model to determine the impacts of changing land use and management actions on water resources.

Scenario Development: Stakeholder-driven scenario narratives were developed to inform cooperative water resource planning under uncertain future conditions. Scenario narratives describe qualitative and quantitative changes to the watershed, with a focus on likely and high-risk events that require extensive planning.

Resources to Inform Watershed Planning: Two guidebooks were published through the University of Arizona Cooperative Extension. The guidebooks outline methodologies and lessons learned for rural watershed planning in the southwestern United States and specifically cover baseline watershed assessments and scenario planning.

Collaborators

- See online for full list of collaborators

Funding Partners

- Desert Landscape Conservation Cooperative
- Bureau of Reclamation

Case study support provided by US Fish and Wildlife Service, US Bureau of Reclamation, US Forest Service, and Cross Watershed Network. Updated August 2018.

Photos courtesy of WRRRC/University of Arizona

LESSONS LEARNED

Ensuring the efforts of all partner organizations were well-coordinated required a significant time investment. During the course of the project there were multiple separate, but related, projects in the watershed. The project team coordinated these projects to take advantage of overlap and minimize confusion about each project’s purpose and goals.

Getting input from all key stakeholders was sometimes challenging and required extensive planning. In addition to soliciting input at workshops and monthly steering committee meetings, the project team set up individual meetings to get feedback from interested stakeholders who could not attend.

It was difficult to convey the complexity of the scenario planning process in a way that would make it useful to the stakeholders in the watershed, but also keep the process robust enough to provide accurate insights into the future. These challenges led the project team to modify the traditional scenario planning process by creating four “meta-themes” centered around critical uncertainties with broad implications for management planning..

NEXT STEPS

- Work with project partners to explore answers to the scenario key questions and new outlets for exploring those questions and incorporate results into a Watershed Assessment Plan

PROJECT RESOURCES

For more information on this project, contact Ashley Hullinger: hullinger@email.arizona.edu

For additional project resources and case studies, visit the Collaborative Conservation and Adaptation Strategy Toolbox:

WWW.DESERTLCC.ORG/RESOURCE/CCAST



Cottonwoods on Gila River/David Chan