



WATER RESILIENCE - INDIGENOUS PERSPECTIVES

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Gila River Indian Community

INTRODUCTION

The water resilience of Native peoples to climate and other exogenous shocks has depended largely on the perseverance of the Native Tribes themselves and will depend increasingly on their own intentions and agency. The University of Arizona Water Resources Research Center's 2021 Annual Conference, *Tribal Water Resilience in a Changing Environment*, provided a platform for Native American participants to present and discuss their experiences, knowledge, and visions of water resilience. This *Arroyo* draws extensively on their words.

The history of relations between Native Americans and European settlers in North America has been fraught with tension and conflict. For centuries, colonial powers forcefully asserted control over North American Native people and their lands. This power dynamic led to the existence of a "dominant culture" that has continued

to disparage Tribal approaches and practices. Although some rights were secured by Native Tribes both by treaty and through federal court decisions, these rights were repeatedly violated as non-Native Americans pushed westward across what is now the United States. Rights to water were among the many disregarded by settlers, who frequently diverted water away from Tribal lands to support their own agriculture, mining, and growing municipalities. These often-sacred waters represent a vital aspect of Tribal identity and are fundamentally associated with many ancestral traditions and customs.

In the late 19th and early 20th centuries, some redress of Native American grievances regarding treaty rights was accomplished through legal action. A major change in the development of Indian law occurred in the 1970s, as a wave of Native attorneys emerged from law schools in the West, determined to advocate for the rights of their people. Notable among them was Rodney "Rod" Blaine



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Lewis, an Akimel O'odham (Pima) from the Gila River Indian Community (GRIC) in Arizona, who was a dedicated and tenacious Tribal lawyer. His efforts for GRIC culminated in the 2004 Arizona Water Settlements Act, by which GRIC's legal rights to water were recognized and quantified. Today, due in large part to the work of champions like Lewis, many of Arizona's 22 federally recognized Tribes find themselves able not only to provide for the water needs of their people, but also to affect water policy statewide and throughout the Colorado River Basin.

Despite the hard-fought legal victories of Native American activists over the last half century, Native people continue to face many water-related challenges. The Southwest, an arid region, is becoming hotter and drier due to climate change, placing enormous strain on water supplies for Arizona and neighboring states. Despite the development of water infrastructure on some Tribal lands, many Native Americans live without access to running water, an issue highlighted by the severity of the COVID-19 pandemic on the Navajo Nation. Native American leaders of today and tomorrow will have to deal with these water challenges, but they are aided in this task by their heritage and culture, their deep connections to their lands, and the progress made by those who came before them.

Much of the information and many of the quotations contained on the following pages are drawn directly from presentations given by Native American participants at the WRRC's 2021 Annual Conference. This *Arroyo* would not have been possible without these presenters and the perspectives and experiences they shared. Full video recordings of each of their presentations are available on the Water Resources Research Center website.

IDENTITY AND RESILIENCE: LINKED CONCEPTS

Identity

Where do we find our identity? This is a complicated question for people throughout the world, and especially so for Indigenous peoples living alongside a predominant culture different from their own. Deep connections to family, traditions, places, and beliefs foster a strong sense of identity among many Native Americans today. Indigenous identity is defined most prominently through an awareness of and connection to



Rod Lewis

Few people get the opportunity to change the lives of an entire community for the better. Even fewer possess the talent and determination necessary to seize that opportunity and turn it into reality. Rodney "Rod" B. Lewis, to whom the WRRC's 2021 conference was dedicated, was one such person. Rod Lewis was born into the Gila River Indian Community (GRIC), the son of Sallie and Roe Lewis of the Pima Indian Tribe. Growing up, he and his brothers John and Robert were accustomed to families in the community hauling water for their daily needs by horse and wagon. His father, a farmer and pastor, would pray during droughts as crops withered in the fields due to lack of water from their traditional water source—the Gila River. All this impressed on Lewis the importance of water and agriculture on Tribal lands, and from an early age he was always eager to listen to the advice of Tribal elders. After serving in the U.S. Army, he began to study at the University of California - Los Angeles, one of the few schools in the country to offer courses on Indian law. Advocating for treaty rights and Tribal sovereignty required expertise, and hiring outside attorneys was often prohibitively expensive for Native communities. Lewis was part of a cohort of Tribal attorneys graduating from law school in the early 1970s who were able to provide legal counsel to Native communities. He served as GRIC's general counsel beginning in 1978 and continued to work for the community throughout his life. In his career, he also represented the Tohono O'odham Nation and other Native communities in Arizona. He was a founding member of the Native American Rights Fund, a legal defense association designed to relieve the financial burden on Native communities in need of legal representation. In 1980, he became the first Native American to successfully argue a case before the U.S. Supreme Court. The crowning achievement of his career was securing billions of gallons of water for Arizona Tribes through the 2004 Arizona Water Settlements Act. This settlement, decades in the making, restored to GRIC the water the community needed to continue their traditional ways of life.

As a student of history, Rod Lewis understood that the experiences of previous generations would help justify and strengthen his case regarding Native water rights. He believed that moving forward to meet future obstacles required maintaining a connection to the past. Purpose driven and disciplined, he saw his work as part of an ongoing struggle to care for his community and lands. His daughter Katherine Lewis recalled that, after the passage of the 2004 Arizona Water Settlements Act, he did not take a break from his work but continued to advocate for GRIC and other Native communities. His son, GRIC Governor Stephen Roe Lewis, remembered his father would say, "It's eternal vigilance: when you watch over your natural resources, your water, you are caretakers, you are stewards of this."

Rod Lewis practiced this stewardship not only in his work, but also in his mentorship of other Tribal attorneys. He believed in being rooted in a community and recognized the influence his work had on younger generations of Native American legal professionals. He also hoped that through his work, GRIC might become a model for other Native governments to invest in their own people and create their own pathways forward. Because he saw that true water resilience is found at the intersection of law, policy, science, engineering, and tradition, he believed educating young people in those disciplines and in their history of water stewardship would ensure Tribal water resilience. Rod Lewis died in 2018 at the age of 77. Today, his legacy lives on in those who knew and worked with him, in those whose lives were touched by his work, and in the waters that flow through the Gila River Indian Community.

<https://wrrc.arizona.edu/dedicated-legacy-rodneylewis>

belief systems and cultural practices that have existed for millennia. These beliefs and practices vary among different groups with distinct ways of life but are linked by historic connections. Karletta Chief, a University of Arizona associate professor and member of the Navajo Nation, cited the example of creation stories that situate humans among the youngest members of creation to explain why humans were not given specific wisdom about the world and therefore are obliged to learn from other creatures and things.

For many Native peoples in the arid Southwest, the sense of an identity born out of shared history and customs is inextricably linked to the lands and waters of their homelands. Chairwoman Gwendena Lee-Gatewood of the White Mountain Apache Tribe summarized the relationship between water and Indigenous identity: “Water is the giver of life.” Other Tribal leaders and academics echoed this sentiment, describing water, personhood, and traditional ways of life, not as separate ideas, but as one and the same.

This profound identification with lands and waters is deeply felt when these things are degraded. Brian Golding, Sr., Quechan Economic Development Administration Director, described what happened when levee systems constructed on the Colorado severed the community's connection to the river. “We turned our back on the river, leaving it to invasive species and social deterioration.” Degradation of their physical and spiritual resources destabilizes Tribal economic security and inflicts cultural wounds, especially when Indigenous groups lack capacity to reverse the harms to their communities. Tribal Chairman Timothy Williams reflected that, as fishers, the Fort Mojave Indian Tribe had been in tune with the ecosystem before Hoover Dam was constructed. Although they were not farmers, tribal members had to build farming capacity to survive. The Tribe “may never recover from the devastation caused by the dam, but we are a resilient people.”



The Ak-Chin Have Been Farmers for Generations. Historical Photo Source: Ak-Chin Indian Community/Ak-Chin-Dak Eco-Museum

The Law of the River

Death is not the end
it is reaching the river
and reclaiming it.

It is becoming the river.
This is the Law of the River.

I have reached my river now
and I have reclaimed it for all eternity.

I am the river now
and the river is me.
This is the Law of the River.

But my journey to the river was always for you
and I have reclaimed it just for you.

And when you reach your river
you will find me there waiting for you.

And together we will become the river
and the river will be all of us together.

This is the Law of the River.

I have lived the Law of the River
with the river as my guide.

I am the river now
and the river is me.

This is the Law of the River.

by Willardene Lewis

Climate researcher Nikki Tulley spoke of how her grandmothers hauled water by wagon, made offerings and prayers with the water, and taught her the language of the land on the Navajo Nation. Living in a home without running water early in her life instilled in her the value of water as “the giver of life” entwined in her identity and her resilience since she was a child. Her grandmothers taught her that “everything has a purpose and a relationship to the overall ecosystem,” which she has continued to implement in her work and her studies.

Today, conceptions of identity among Indigenous peoples are also complicated by the need to function in both the predominant or mainstream cultural context and the traditional world. Navajo Nation President Jonathan Nez recognized that “our lens, our world view—that water is life—may be different from other world views.” This has meant, as Water Resources Specialist Jake Golden, a member of the Cherokee Nation, stated, “We must walk two paths: the mainstream path and the Native path.” As Native American communities work to exercise their sovereignty and bolster their water security in the face of climate change, a greater level of participation in the dominant culture is necessary. As Rod Lewis’ life and career demonstrate, walking the path between two worlds can lead to tremendous accomplishments.

Traditions often underscore the bond between a people and their lands. As these traditions are often rooted in specific lands that may have been home for countless generations, the identity and resilience of Native people are not only connected to their history,

but also to their lands and waters. Colorado River Indian Tribes Council Member Tommy Drennan spoke to the deep connections of river Tribes with the waters upon which their ways of life are founded: “Our people grew their crops on the banks of the river, lived off the animals and the bounty that were maintained by the river’s ecosystems. Our songs and stories are tied to the river, and our historical methodology of sustaining life and agriculture in an arid desert environment are preserved within them.”

On the Hopi Mesas, Michael Kotutwa Johnson’s practice of traditional Hopi dryland farming has linked him to his ancestors and their lands. These farming techniques evolved over millennia to preserve soil moisture as a response to arid conditions, allowing growers to continue to farm and find bounty in the same lands for countless generations.

In addition to applying their allotment of Colorado River water directly to domestic, commercial, or agricultural uses, the GRIC has elected to create a series of Managed Aquifer Recharge (MAR) projects where Central Arizona Project (CAP) water is used to replenish groundwater supplies. To support the community’s water needs, the projects pump stored water from rehabilitated wells. Additionally, the flagship project, MAR 5 (cover photo), saw Colorado River water delivered by CAP directly into the channel of the Gila River, creating an active riparian habitat and returning flowing water in this stretch of the river. Rod Lewis’ daughter Katherine Lewis described the impact of the restored Gila River flows on the community:

“With the opening of the MAR 5, those of you who happened to be there, you saw firsthand the resiliency of our people and the spiritual tie of the water to our people. We had community members who wanted to touch the water, feel the water, because they hadn’t seen it in so long, and they were so appreciative of having it back in such a beautiful environment. We are a river people, and it was a reawakening of ourselves as a river people, with this water being returned back to our community.”

Revitalization of the river has led to a new sense of identity among GRIC members that today’s Tribal leaders hope to continue to develop in future generations.

Resilience

Resilience is a multifaceted concept that expresses itself differently in each Native community. At its core, resilience refers to the ability of a person or community to continue to thrive during and after disruptive shocks. Percy Deal, Tó Nizhóní Ání board member, spoke of the role his parents and grandparents played in preparing him “for [a] life challenge, before it happens, during, and after. To be prepared for the unexpected. When it happens, how to handle it, how to resolve it, and understand why it happened.”

One academic conception of Tribal resilience, described by Karletta Chief, involves identifying factors that contribute to a household’s or community’s ability to respond positively to an exogenous disruption. Thus, from Tribal perspectives, resilience frequently includes carrying the culture and traditions of ancestors into the future.

Chief described her grandmother maintaining her livelihood when coal mining destroyed her land and contaminated its water. She spoke of her parents

Australian Aboriginal Scholarship on Resilience

“[Indigenous resilience] is the ability to have a common connection and belonging to one’s land, family and culture: therefore, identity. Resilience allows the pain and suffering caused from adversities to heal. It is the dreaming, where the past is brought to the present and the present and the past are taken to the future. Resilience is a strong spirit that confronts and conquers racism and oppression, strengthening the spirit. It is the ability to thrive not just survive in today’s dominant culture.”



Marion Kickett, an Aboriginal scholar and educator, conducts research on the resilience of Aboriginal Australians and seeks to understand why many Aboriginal people are unable to live in two cultures successfully. A Noongar leader from the Balrdong language group, Kickett was born in York, Western Australia, and grew up on the

York Aboriginal Reserve, impoverished but surrounded by extended family. She draws personal resilience from her family’s traditional lands, her family, her identity, her spirituality, her culture, and her education, as well as from the various adversities she has encountered throughout her life. Her work as director of the Centre for Aboriginal Studies at Curtin University Perth includes an effort to define resilience from an Aboriginal perspective and establish links between Indigenous resilience with physical and mental health. Her definition is useful in considering the role resilience plays among colonized Indigenous cultures worldwide. From conversational group interviews with Aboriginal people across Australia, a method rooted in the oral traditions of Indigenous Australians, she drew out a definition of Indigenous resilience as a continuous process through which one’s sense of culture and identity is cultivated based on positive factors, while negative factors such as anger, oppression, shame, and racism are let go.

maintaining their language and culture despite being taken from their homes and made to attend American Indian boarding schools thousands of miles away. Throughout these hardships, Chief’s family preserved their traditions and passed them on to her. She attributed their resilience to the connection they had with their ancestors, echoing Marion Kickett’s conclusion (see sidebar) that the adversities faced by colonized



COVID-19 Spotlighted the Failures of Water Infrastructure on the Navajo Nation. Source: Crystal Tulley-Cordova <https://wrrc.arizona.edu/sites/wrrc.arizona.edu/files/pdfs/Crystal-Tulley-Cordova-WRRC-2021-Conference.pdf>

Indigenous peoples further strengthen their sense of resilience.

While anecdotes paint a picture of the foundational elements of Tribal resilience, a body of academic work led by Native researchers is helping to define Indigenous resilience. Chief identifies five categories of factors that contribute to Tribal resilience at the household, community, or Native Nation levels: socioeconomic, political, infrastructural, environmental, and spiritual/cultural. The impact of an exogenous shock to an Indigenous community depends on how robustly supportive factors in these categories are established. The recent outbreak of COVID-19 on the Navajo Nation provides an example in which the lack of developed water delivery infrastructure adversely impacted the ability to respond to the pandemic in the short term. The effects of and responses to COVID-19 on the Navajo Nation highlight the urgent need to develop the resilience factors that equip Indigenous peoples to navigate future adversities.

WATER RIGHTS AND SETTLEMENTS

The progress in establishing legally defined Tribal water rights, represented by the 2004 Arizona Water Settlements Act, did not occur in a vacuum. It resulted not only from the tremendous work and dedication of Rod Lewis and others, but also from significant legal precedent and water settlements dating back to the early 20th century. The Constitution of the United States authorizes the President to enter into treaties with the advice and consent of the Senate; and these treaties, along with congressional legislation and executive orders, recognize Tribes' rights within the U.S. legal system. Treaties are grants of rights from tribes, with concomitant reservations of rights - to land, water, and resources like hunting and fishing - by tribes. Treaties

and the establishment of Tribal reservations provided the legal structure from which various court cases involving federally recognized tribes, and the decrees, settlements, and congressional actions resulting from them, have been possible.

Legal precedent continues to play a crucial role in advancing equitable solutions to Tribal complaints. Because of the influence of this legal history on current issues, they are worth exploring at length.

Two significant early cases were *U.S. v. Winans* (*Winans*, 1905) and *Winters v. U.S.* (*Winters*, 1908). *Winans* focused on fishing rights and *Winters* focused on water rights. Together, these cases created precedent that the reservation of Tribal lands implied the reservation of associated rights. *Winans* involved lands along the Columbia River ceded in a treaty by the Yakima Nation, which retained rights to use of the lands. The court's ruling, as articulated by Heather Whiteman Runs Him, director of the Tribal Justice Clinic at the University of Arizona James E. Rogers College of Law, "established the principle that a treaty is not a grant of rights to the Indians, but a grant of rights from them," and Tribes retain all rights not otherwise specifically enumerated in the treaty. This ruling provided foundational support for what would come to be known as the Reserved Rights Doctrine, which has been used since to assert federal and Tribal reserved rights to water.

Winters dealt with a dispute that arose over "non-Indian water" diversions occurring upstream of the Fort Belknap Reservation in Montana. The reservation had been established by a treaty that did not specifically enumerate water rights. The Supreme Court's ruling noted a "conflict of interpretation" and determined that terms of treaties are to be construed in the way the "Indians" would have understood them. This ruling established the *Winters* Doctrine, which fixed the priority date of Tribal water rights as the date a reservation was established, making them almost always the oldest (most senior) water rights in western basins.

Arizona v. California further developed the *Winters* Doctrine decades later (1963). In that case, the U.S. Supreme Court rejected the idea that Tribes must have signed a formal treaty with the United States to have a water right. The court found that the nature of reserved rights was consistent across reservations, even if they were established by agreement or executive order after the United States had ceased making treaties with Tribes.

Arizona v. California is also notable for articulating the "practically irrigable acreage" (PIA) standard as a metric for quantifying Tribal water rights on the assumption that Native people would be farmers. Thus, it should be unsurprising that Native producers make up 60 percent of the agricultural producers and manage 80 percent of the farmland in Arizona. The PIA standard was modified through a later reinterpretation of *Winters* described below.

STATUS OF TRIBAL WATER RIGHTS IN ARIZONA

SETTLED OR DECREED

- Cocopah Indian Tribe (AZ v. CA, 1963)*
- Colorado River Indian Tribe (AZ v. CA, 1963)*
- Fort Mohave Indian Tribe (AZ v. CA, 1963)*
- Quechan Indian Tribe (AZ v. CA, 1963)*
- Ak-Chin Indian Community (1978/1984)
- Salt River Pima-Maricopa Indian Community (1988)
- Fort McDowell Yavapai Nation (1990)
- Yavapai-Prescott Indian Tribe (1994)
- Pueblo of Zuni (2003)
- Gila River Indian Community (2004)
- White Mountain Apache Tribe (2010)

NOT YET FULLY SETTLED OR DECREED

- Navajo Nation (Partial, 2005, 2020) (LCR Adj.)
- Hopi Tribe (LCR Adj.)
- San Juan Southern Paiute Tribe (LCR Adj.)
- Pascua Yaqui Tribe (Gila Adj.)
- San Carlos Apache Tribe (Partial, 1992) (Gila Adj.)
- Tohono O'odham Nation (Partial, 2004) (Gila Adj.)
- Tonto Apache Tribe (Gila Adj.)
- Yavapai-Apache Nation (Gila Adj.)
- Havasupai Tribe (Gila Adj.)
- Hualapai Tribe (Partial, 2014)
- Kaibab Band of Paiute Indians

*Refinements and adjustments to AZ v. CA were made in 1964, 1966, 1979, 1983, 1984, 2000, 2006

Gila Adj: Gila River Adjudication

LCR Adj: Little Colorado River Adjudication

TABLE 1. Status of Tribal Water Rights in Arizona. Source: Modified from Robyn Interpreter
<https://wrrc.arizona.edu/sites/wrrc.arizona.edu/files/WRRC-Pre-Conference-Interpreter-8-13-21.pdf>

Another pivotal Tribal water rights case, *The Confederated Tribes of Colville Reservation v. Walton* (Walton, 1981), centered on establishing the priority date for the water rights of individual Tribal members. The case applied the 1952 McCarran Amendment, congressional legislation that allowed the U.S. to be made subject to the jurisdiction of state courts, including for the adjudication of Tribal water rights. This ensured that, if a stream adjudication was already underway in state court, a federal court would not later step in to adjudicate on its own. In *Walton*, the state court recognized that the water rights of individual allottees (Tribal members who had been allotted water from the Tribe's water right) have the same priority date as the Tribe's water right.

Two major water rights adjudications, the Little Colorado River and the Gila River respectively, began in the 1970s, with the goal of quantifying the rights to use appropriable water from these two rivers and their tributaries. These cases include federal claims for water for Tribal reservations along with claims of many non-Native water users. These adjudications, which are ongoing, have included many decisions that affect Tribal water rights. During the adjudication of the Gila River and its tributaries, the court relied on the conclusion of Justice Joseph McKenna in the *Winters* case that the purpose of a federal American Indian reservation is to serve as a "permanent home and abiding place" for the people living there. Because reservations need water for domestic use, irrigation, Tribal development projects, other economic uses, and any traditional cultural practices and religious uses, water sufficient for these uses is reserved. In addition, the Gila River adjudication extended federal reserved water rights to some water that had been considered groundwater under state law.

This history of litigation, adjudication, negotiations, and congressional actions has had a tremendous impact on many Native communities that previously had experienced disputes and uncertainty over water entitlements. As a result of negotiation and adjudications, 14 Arizona Tribes have settled or decreed water rights. As of August 2021, 11 other Tribes are still working to secure quantified water rights (see Table 1).

One example of the effects that water settlements have on Native communities comes from Rod Lewis' own community. In accordance with the 2004 Arizona Water Settlements Act, GRIC holds the largest entitlement of Colorado River water delivered to any entity via the CAP canal. This entitlement has enabled GRIC to plan and implement a strategy for restoring the community's economic vitality and Gila River heritage.

When the promise of federal funding plays a role in reaching agreement, as is usually the case, water settlements and consequent congressional actions have two major stages. The first is the settlement itself, consisting of the agreement among the state, federal, and Tribal parties, as spelled out in legislation approved by Congress. The second is "appropriation" by Congress of the money the tribe requires to take possession and make use of the water. Congressional follow-through is often needed before a settlement can yield its promised resilience and long-term sustainability.

One example of this two-part process is the water rights history of the White Mountain Apache Tribe, whose lands are located on the major headwaters of the Salt River—a vital supply of water for agriculture and domestic use in and around the Phoenix Metropolitan area. Disputes over Salt River water continued throughout a century of conflict between the Tribe and downriver water users. Lacking resources for infrastructure to store

KEY LEGAL CASES FOR TRIBAL WATER LAW

Case Name	Decision	Tribes	Key Conclusions
U.S. v. Winans	1905	Yakima Nation	Tribes retain all rights not relinquished in the treaty
Winters v. U.S.	1908	Fort Belknap Reservation	Priority date of Tribal water right is date that reservation was established; treaties to be construed as the “Indians” would have understood them
Arizona v. California	1963	Various Colorado River Tribes	A signed a formal treaty with the U.S. not needed for Tribes to have a water right; “practicably irrigable acreage” (PIA) water right quantification standard
The Confederated Tribes of Colville Reservation v. Walton	1981	The Confederated Tribes of Colville Reservation	1952 McCarran Amendment (1952) applied to adjudication of Tribal water rights in state courts; individual allottees with water rights have same priority date as Tribe
General Stream Adjudications of All Rights to Use Water in the Gila River System and the Little Colorado River System	Ongoing	Various Arizona Tribes	1999: federal reserved water rights extended to some water considered groundwater under state law; 2001: “permanent homeland” standard reserves sufficient water for domestic use, irrigating arable lands, Tribal development projects, other economic uses, traditional cultural practices, and religious uses

TABLE 2. Chronology of Significant Legal Decisions and Key Conclusions Relevant to Tribal Water Law. Source: WRRRC

and distribute water, the Tribe watched its water flow away. As the city of Phoenix grew, the White Mountain Apache faced water outages and declining water quality. In 2009, the Tribe entered into a Water Rights Quantification Agreement with nine cities in the Phoenix Metropolitan area, several major water stakeholders in the area, including irrigation districts, and the state of Arizona. This settlement agreement prompted the U.S. Congress to pass the 2010 White Mountain Apache Tribe Water Rights Quantification Act, which authorized, among other things, funding for the development and operation of a sophisticated water delivery network on the White Mountain Apache Reservation. Named the White Mountain Apache Rural Water System, this delivery network, when completed, will include a dam and accompanying storage reservoir, a pumping plant, water treatment facilities, and over 50 miles of pipeline for distribution. Without the 2010 settlement and subsequent congressional appropriations, none of this infrastructural development would have been within the Tribe’s financial capability. Now, for the first time, all communities on the Tribe’s lands will be provided with a secure supply of safe, clean drinking water, and there is hope that the system will provide additional commercial and recreational benefits. The water system is an essential step toward Tribal water resilience for the White Mountain Apache. In a future characterized by climate extremes and water variability, the 2010 settlement should ensure a long-term and reliable water supply for current and future generations.

PARTNERSHIPS

Across Arizona, partnerships among Native and non-Native entities have been essential to the achievement of water resilience goals. These

partnerships may take many forms, including cooperative agreements between Native communities, participation in Tribal organizations, and collaborations with both public and private non-Native entities. Expressing sentiments shared by other Tribal leaders, Navajo Nation President Nez emphasized that dealing with water issues requires collaborative efforts. The passage of the 2004 Arizona Water Settlements Act, the development of the White Mountain Apache Tribe’s water delivery infrastructure, and the establishment of the MAR 5 wetlands are three examples of achievements that would have been much more difficult, if not impossible, without strong partnerships.

Inter-Tribal partnerships play a crucial role in cultivating resilience and accomplishing community goals. For example, Tribes, including the Navajo Nation and Colorado River Indian Tribes (CRIT), aided the Hopi when flooding created a state of emergency on the reservation. The Native American Rights Fund (NARF) is another example of inter-Tribal partnerships. NARF was founded in 1970 to provide legal expertise and support to Tribes, Native organizations, and individuals who might otherwise have been unable to afford adequate assistance or representation. The organization formed and governed by members of various tribes, has successfully represented the interests of Native American communities in hundreds of major cases.

John Echohawk, a NARF founder and contemporary of Rod Lewis, knew water rights would be among the principal legal issues faced by Native communities throughout the country. The establishment of NARF ushered in numerous successful suits upholding treaty rights that had been suppressed or ignored. Since its foundation, NARF has provided legal support for more than 275 Native groups and contributed to the

development of influential Indian law principles and precedents.

In addition, instances of successful partnerships between Native communities and non-Native entities are plentiful. A well-known example concerns the COVID-19 pandemic, when the Navajo Nation worked closely with



Integrating Drip Irrigation Technology into CRIT Irrigation Practices is Increasing Water Use Efficiency. Source: Joshua Moore <https://wrrc.arizona.edu/sites/wrrc.arizona.edu/files/pdfs/Joshua-Moore-WRRC-2021-Conference.pdf>

multiple non-Native entities to build 59 transitional water points to serve communities at greatest risk of viral infection because they lacked access to running water for sanitation. These partners included the U.S. Department of Health and Human Services, the University of Arizona, and Johns Hopkins University, among others. The Navajo Nation also has worked with the U.S. Geological Survey for years to monitor and describe aquifers on Tribal lands. In La Paz County, CRIT partners with CAP, the University of Arizona, and the micro-irrigation company N-Drip to develop practices that will improve irrigation water efficiency. The partnership with N-Drip has involved CRIT farmers in the development of new knowledge about irrigation water efficiency, which in turn is expected to ease the transition away from flood-based irrigation.

In addition, common Native and non-Native goals can be achieved through partnerships. GRIC and CRIT are currently working with the U.S. Bureau of Reclamation, CAP, and the Arizona Department of Water Resources (ADWR) under Arizona's implementation plan for the Colorado River Basin Drought Contingency Plan (DCP) to actively conserve and store water in Lake Mead, reducing the probability of severe shortage. GRIC also is partnering with the Salt River Project on a program of aquifer storage to create water credits for those developers and water providers who must show ADWR they have rights to a sufficient quantity of water for planned growth.

A SEAT AT THE TABLE

Until recently, Native peoples were not routinely invited to participate in high-level discussions involving water issues in Arizona. During the drafting of the 2007 Colorado River Interim Guidelines for Lower Basin Shortages, later augmented by the DCP, Native tribes were not among the agencies and organizations invited to the negotiating table. Instead, the Bureau of Indian Affairs acted as liaison with Tribes that held claims to Colorado River water. In the 15 years since, Tribal involvement has increased in developing solutions to the myriad water problems faced by western states.

Contributing to Policy Solutions

As conflicts between Native tribes and non-Native water users have given way to negotiations or adjudications, Tribes throughout the region with secure quantified water rights have become essential participants in policy discussions.

Tribal Sovereignty

Tribal sovereignty is a critical concept that many people outside of Tribal communities do not understand. Tribes have a right to self-determination, and it is through their inherent sovereignty that they enjoy this right. Tribal sovereignty underpins the capacity to take actions that further community values. It empowers Tribes to decide what is important to them and then design and implement action plans based on those decisions. Hopi Tribe member Carrie Joseph described Tribal sovereignty as the ability to practice and continue to express “who we are as Hopi people” without interruption and without interference from external policies.

Tribal sovereignty is interpreted not only as a right, but also as an obligation. Fort Mojave Indian Tribe Chairman Timothy Williams expressed the generally shared conviction that, as sovereign Tribes, “we have to take care of our own with our own.”

The history of Tribal sovereignty in the United States is contentious. Although Tribal sovereignty is implicit in the U.S. Constitution, in practice Tribes often have found themselves unable to actualize their sovereign rights. The conflict between Tribes' right to self-determination and restrictive federal and state legislation has existed since the founding of the United States. Over time, mistrust has characterized relations between Indigenous populations and the populations that displaced them.

Efforts continue to define statutory and regulatory jurisdiction on issues relating to the land and people of sovereign Tribes. For example, tribes are challenging rules found in some congressionally enacted water settlements that impose restrictions on off-reservation use of Tribal water. Efforts, like these, to remove restrictions on Tribal sovereignty are playing out through litigation and negotiation, as well as through the legislative process. In fact, the quickest way to remove some water use restrictions may be through convincing lawmakers to change the law.

An example of the shift toward Tribal inclusion in policy planning occurred in 2014, when Reclamation initiated a collaboration with the Ten Tribes Partnership, a coalition of Upper and Lower Colorado River Basin Tribes, to produce the Colorado River Basin Ten Tribes Partnership Tribal Water Study. The goal of the study was to learn the perspectives and positions of each of the ten partner Tribes as a vital followup to Reclamation's 2012 report on Colorado River water demand and supply, which lacked Tribal participation. Reclamation Commissioner Camille Calimlim Touton described honoring Tribal relationships as "paramount to the mission of the Bureau of Reclamation." The 2009 Water Rights Quantification Agreement between the White Mountain Apache Tribe and various stakeholders in the Phoenix Metropolitan area put an end to over a century of dispute over water and paved the way for funding and constructing essential infrastructure on the White Mountain Apache Reservation.

The presence of representatives from CRIT, GRIC, and the Tohono O'odham Nation during the drafting of the DCP was a major step toward ensuring Arizona Tribes have a seat at the negotiating table. During the DCP negotiations, both GRIC and CRIT worked toward acceptable solutions with government agencies, farm associations, water and energy organizations, business advocacy groups, and irrigation districts from across the Southwest. While these negotiations were not always harmonious, they resulted in a robust framework for dealing with ongoing drought in the Colorado River's Lower Basin. In total, the basin-wide Colorado River agreement included Mexico, all seven Colorado River Basin states, and Reclamation. Of the negotiations, then-Arizona Senator Martha McSally said, "It has never been more important for Tribal, state, and other stakeholders to work together to address shared challenges—like protecting the water supply for millions of people. The DCP agreement serves as an example of the progress that can be made when stakeholders come together to tackle critical issues."

Speaking to the importance of Tribal representation in high-level discussions concerning the Colorado River, CRIT Tribal Council Chairwoman Amelia Flores remarked, "We must remain active and vocal for what we want for our people and for the life of the river." Arizona Native people are keenly aware that, despite recent strides, maintaining their position as equal negotiating partners will require continued assertion of their voices and their rights. For example, Flores maintained that saving the life of the Colorado River requires direct and immediate action. It is only through maintaining a seat at the table that CRIT will be able to secure federal legislation to overcome restrictions on rights to develop and protect environmental resources on its lands. GRIC Governor Stephen Roe Lewis amplified Flores' sentiment when he stated it is necessary to have Native Americans



U.S. Bureau of Reclamation Commissioner Camille Calimlim Touton Speaking at the WRRRC 2021 Annual Conference. Source: WRRRC

involved in every aspect of local, state, and federal policymaking and governance.

Integrating Traditional Knowledge

As climate change strains already overallocated western water supplies, Tribes may hold the keys to regional water sustainability. Around the world, Indigenous peoples make up less than 5 percent of the world population and protect 80 percent of global biodiversity on a mere 25 percent of the planet's land. These pockets of biodiversity can be protected by creating conditions in which Indigenous cultures can survive. Hopi farmer Johnson, who holds a Ph.D. from the University of Arizona, said, "We need to listen to [Indigenous people]. The dominant culture has been trying this and that, but without the help of Indigenous people, I don't know if they'll ever be able to solve some of these environmental problems." The cultures that have supported this biodiversity for millennia have much to teach dominant cultures around the world, but they can only do so if their voices are heard.

Water hauler and former Navajo County Supervisor Percy Deal echoed these sentiments, "Having Native Americans consistently at the table will help everyone come together to overcome these [water] issues."

NARF Executive Director John Echohawk said tribes will be involved in addressing the crisis caused by climate change. Describing his father's thoughts, Rod Lewis' son John B. Lewis underscored the fact that "climate change is real and climate action is necessary on the part of Tribes and Tribal communities." Tribal reservations are usually remote and without commercial development, making them particularly vulnerable to climate shocks such as drought and flooding. Native American communities will always be among the first to be adversely impacted by global climate change. Selso Villegas, executive director of water resources for the Tohono O'odham Nation, said of Mother Earth, "We are giving our mother a fever," and we owe her better care. Only through maintaining the ability to advocate for themselves and the environment can Native Americans integrate their vital contributions

into efforts to mitigate the adverse impacts of climate change.

VISION – HOPES, WARNINGS, AND EXHORTATIONS

After all that has come before, what comes next? The answer depends on the extent to which Tribal sovereignty governs the development of plans and actions, the amount by which partnerships among Native communities and between these communities and non-Native groups can contribute to advancing shared goals, and the degree to which a plurality of pathways to resilience are encouraged. While Arizona Tribes have made tremendous strides in the last 50 year in terms of self-determination, water resilience, and participation in policymaking, they continue to face immense water challenges.

These challenges are driven chiefly by a lack of essential services on Tribal lands and are exacerbated by a changing climate. Drought is the most apparent — but not the only—climate-related water difficulty threatening Native communities in the arid Southwest. As mentioned earlier, the Hopi Reservation experienced extensive flooding in 2021, leading Chairman Timothy Nuvangyaoma to declare a state of emergency. The incidence of intense and damaging flood events is likely to increase in the future as weather patterns become more erratic. In the coming decades it will fall to succeeding generations to continue the work of those who came before them: building water resiliency and carrying on the traditions of their ancestors.



Hopi Farmer Shares His Knowledge with the Next Generation. Source: Michael Kotutwa Johnson <https://wrrc.arizona.edu/sites/wrrc.arizona.edu/files/pdfs/Michael-Kotutwa-Johnson-WRRC-2021-Conference.pdf>

Blessings for Water

by Ofelia Zepeda

I've imagined the Gila River as it ran through the desert with all its bounty
Where today the children say they can hear the river running
I've touched the waters of the White River in eastern Arizona
And I have put my foot in the slow currents of the San Pedro
I have ridden the waves of the Colorado and rested on its flows
Paying homage to the deities and spirits that call the canyons home
I've seen the Rio Grande run rapids in the north and meander through the flats of southern New Mexico, where whooping cranes rest on their way home
I've lived in a place called Red River where there was no river, but was named for a movie
I live near the Rillito River, a river named twice, a river that can flow with the best during rainy winters and rich summer monsoons
A dry riverbed most of the year, harboring the homeless and those alone
As for large bodies of water, we must pray at their feet and give gifts
I have done so and record them here to be witnessed
I have offered blessings at the Pacific Ocean in San Diego, Los Angeles, La Jolla, and Ventura Beach, surrounded by vacationers and dogs chasing frisbees
I've offered a prayer at a dry, hot desert beach at the Gulf of California, with only Mexican fisherman caring for their nets as my alibi
I've humbled myself on the black beaches of Hawai'i, twice on the beach at Waikiki, oblivious to bronze bodies and surfers who would testify
I've offered blessings only once at the Atlantic Ocean, at Martha's Vineyard, with a woman who shook a language from sleep as my witness

A related concern is diminished flow in the Colorado and other rivers in Arizona. While their senior rights to water have placed some Tribes in a position to assume statewide leadership roles in developing water policy, Native leaders suspect that non-Native entities will eye their water as Arizona's supply diminishes. Native communities also face many challenges resulting from centuries of political and economic disenfranchisement. Many Tribes' water rights have yet to be adjudicated or settled and many Native Americans still live in homes with no access to running water, a public health threat underscored by the COVID-19 pandemic.

Looking ahead, today's Tribal leaders, like Rod Lewis before them, understand that teaching younger generations the importance of water is crucial to building a water-resilient future. Native leaders are interested in formalizing mentorships between community members with expertise in fields like law, policymaking, and water engineering and young Tribal members just beginning to assume their roles in the community. John Lewis emphasized the importance of mentorships, saying it is "always in our best interest to create positions and support our own people. That will be how we get things done."

Modeling the resiliency of their elders and their land can empower young Tribal members to learn about and protect their natural resources and build Tribal knowledge and capacity for the future. Katherine Lewis, echoing the sentiments of her father and brother, emphasized the importance of showing the younger generations what is possible by recognizing and modeling the dedication and purpose of older generations. Jesse Navarro, a specialist in government affairs for the Tohono O'odham Nation, said, "We need to pray for our strengths, the water, the safety, and the health of our people. We need the younger generation to get educated and to understand the sacred element of water. We need to advocate for the rights of water."

Possession of legally robust, quantified, and extremely senior water rights have put Tribes in a position to shape water policy in Arizona and throughout the West for decades to come. In addition to the central policy position given by their settled and decreed water rights, Native communities have seen a shift in recent years to greater mainstream acceptance of Native ways and greater attention to Native voices in mainstream culture. The next generation of Native leaders may well find their impact extending far beyond the borders of their communities and exercising substantial influence over dominant cultural attitudes toward water management. Navajo leader Percy Deal, retelling his father's story, said, "The Creator, after making Mother Earth, [gave] instructions to Diné telling them ... always remember you do not own the land... The land belongs to the Creator. You are only a steward... Should you not follow these instructions, there will be consequences." These include drought, water shortages, wildfires, climate changes, and coronavirus, Deal added. Many people outside of Native communities now seem prepared to learn those lessons.

Today, new forms of Tribal resilience are created through the reconciliation of Native knowledge and

spirituality with science. Governor Lewis said, "The community believes that the only way to address difficult issues like drought is through innovation." A new generation of Native American professionals is well placed to innovate water management. Just as Rod Lewis had hoped, a growing number of these young professionals in the fields of law, water policy, natural resources management, and engineering are beginning to integrate Indigenous perspectives with these disciplines. When calling upon younger generations to retain Tribal seats at crucial negotiating tables, Echohawk said the time has come for Native Americans to "get educated and be ready to deal with these issues at the legal and technological level." He continued, "Tribes will need them. We need all the help we can get. Our people are well-equipped to [deal with these issues] if they get that education, because they will be crucial to our future in the West."

Chairwoman Gwendena Lee-Gatewood of the White Mountain Apache Tribe said, "We owe it to [children] to guide, protect, and nurture them to be sure that this next generation is strong and will care for the resources that we have. Our Creator then also will bless us for teaching his children, and life goes on as we know it."

For Arizona's Tribes, the future looks both promising and challenging. To navigate through conditions that reflect a lingering legacy of colonialism and worsening climate change will take vision and persistence. Fortunately, in recent decades, Native peoples have had cause for optimism. By maintaining strong connections to history, tradition, and culture; by encouraging the professional development of their young people; and by continuing to advocate for their rights, Arizona's Native communities will prevail in the face of current and future challenges and contribute to water resilience for all.



A Hopeful Sign Posted on the Navajo Nation. Source: Percy Deal <https://wrrc.arizona.edu/sites/wrrc.arizona.edu/files/pdfs/Percy-Deal-WRRC-2021-Conference.pdf>

Acronyms

ADWR: Arizona Department of Water Resources.

CAP: Central Arizona Project, which operates the canal bringing Colorado River water to Central Arizona.

CRIT: Colorado River Indian Tribes, including the Mohave, Chemehuevi, Hopi, and Navajo Tribes.

DCP: Drought Contingency Plan, an agreement among the seven Colorado River Basin states and the U.S. Bureau of Reclamation attempting to forestall catastrophic declines in reservoir levels at Lake Powell and Lake Mead.

GRIC: Gila River Indian Community, including the Akimel O'odham (Pima) and the Pee-Posh (Maricopa) Tribes.

MAR: Managed Aquifer Recharge, projects that replenish groundwater.

NARF: Native American Rights Fund, a Tribal organization that provides legal expertise and support to Tribes and Native organizations and individuals.

Reclamation: U.S. Bureau of Reclamation, the federal agency that owns and operates the Colorado River storage and distribution system.



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Land Acknowledgement

We respectfully acknowledge the University of Arizona is on the land and territories of Indigenous peoples. Today, Arizona is home to 22 federally recognized tribes, with Tucson being home to the O'odham and the Yaqui. Committed to diversity and inclusion, the University strives to build sustainable relationships with sovereign Native Nations and Indigenous communities through education offerings, partnerships, and community service.

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Brian McGreal graduated in December 2021 with a MS in applied econometrics and policy analysis from the University of Arizona Department of Agricultural and Resource Economics. He will pursue a Ph.D. in applied economics at Oregon State University beginning in fall 2022. Since 1988, Susanna Eden has held various positions at the university's Water Resources Research Center, including 10 years as assistant director. She holds a Ph.D. from the UArizona Department of Hydrology and Water Resources (now Hydrology and Atmospheric Sciences). Taylor McHugh is a Coverdell Fellow and UArizona graduate student in landscape architecture.

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