Contents

INTRODUCTION

Our Water Stories

When I first arrived in Flagstaff, Arizona, in the summer of 1997, I missed the ocean. I missed looking out as far as the eye could see into the deep blue expanse. I missed the lakes, ponds, and rivers and the verdant green forests—products of a water-quenched region.

Living in my new home, in a community built on former WWII bean fields, I would gaze over the high-desert brush spread out toward the San Francisco Peaks, taking in the muted colors and dry scrub, dull and stark to my senses. This land felt bleak, and I yearned for the blue sweep of the ocean, aching for a place where my mind could expand and dance with the tossing waves.

After eighteen months of feeling homesick for the northeast coast, something began to shift in me. I found myself appreciating the subtle green buds that speckled the land as wildflowers burst open after monsoon rains. I marveled at the power of the mountain, feeling its solidity and a type of wild presence, previously unknown and unfelt by me. And one day, I gazed up at the Arizona-blue sky, and my mind took off, stretching out over the land. I realized that day that all I needed was to look up, and there was the ocean, just not where I was used to seeing it.

https://doi.org/10.5876/9781646427024.c000

In the Southwest great stretches of ocean may be seen from miles away. Whereas a thick overcast film often characterizes the New England and mid-Atlantic sky, in Arizona I could see the ocean in the form of storm clouds hurtling across the heavens. They build up momentum like great waves that suddenly come crashing down upon the land, soaking the sunbaked fields, carving out rivulets and drainages, revealing the power and majesty of the ocean, Southwest style.

Over the years, I have come to not only appreciate living in the Southwest, I have come to love living here. It's a love forged by listening, observing, connecting, and opening to something very different from anything I had ever known before. And as with everything I love, I also feel heartbreak when the land is hurt in some way.

Today, as I walk along the path behind my home, clouds gather and thicken. There's a reunion going on over the Peaks. They collect and darken, piling high, more massive than the imagination can comprehend; more massive than the greatest skyscraper; three times the size of the mountain itself. There really is no comparison.

Pregnant, heavy with the water they have collected from the ocean, they burst open, pouring over the mountain, and rushing down her massive sides. The water follows old tried paths, tumbling over rocks, twisting and turning as it rushes down, draining into rivulets that pour into streams, moving with the weight of gravity through the valley, into washes, once dried out from the hot summer sun, then into creeks. I listen to its gurgling song. There are messages in the songs of the clouds as they move down mountains, into valleys, through streams and creeks. But to hear these messages, we need to listen deeply.

Heading south, returning home, the water follows pathways to reunite with the ocean and begin the journey all over again. That is the life of a cloud. From the creeks and streams, rivulets come together, reuniting again as they once did as clouds high in the sky. I imagine them gathering together and flowing into the River, the main river of the Southwest: the Colorado. But it is unlikely that much of the rainwater actually makes it into the Colorado, as the thirsty land with its volcanic, permeable soil soaks up the rain long before it enters the river.

What rainwater does make its way off the Peaks, meeting up with creeks, streams, and tributary rivers, eventually gathers with the reduced flow of the Colorado (fed primarily by snowmelt,) and now, as one River, heads

FIGURE 0.1. San Francisco Peaks during a monsoon storm. (Photograph by Sam Minkler)

south toward the Mexican border. But the Colorado is depleted. Aside from a reduced flow due to climate change, water is dammed and siphoned away to be redirected where needed: Los Angeles, Las Vegas, Phoenix, Tucson. Approximately 40 million people depend on water from the Colorado River. Nowhere else on the planet do so many people depend on a river so small.

The river continues to head south and gradually becomes a trickle, seeping slowly into the Colorado River Delta, whose thirsty parched surface, once a vibrant Garden of Eden, absorbs the remaining drops of the cloud. The cloud never makes it to the Sea of Cortez, never reunites with the Great Ocean from whence it came. The cycle has been disrupted.

The Drought in the Desert

Of course, the Southwest is a desert. It has always been dry, receiving between three and fifteen inches of precipitation annually. But a desert can have a drought too. And when a desert is in an extended drought, people begin to get nervous and wonder, will there be enough water to go around?

During the twentieth century, climate variability led to less precipitation, hotter temperatures, reduced runoff, and increased evaporation. Since 2000, the US Southwest has experienced higher than average temperatures and drought conditions, meaning less moisture through evaporation and less precipitation (EPA, 2023). The increased temperatures have resulted in less snowfall and are driving evaporation of surface water. Overuse of the two main rivers of the Southwest, the Colorado River and the Rio Grande, and their tributaries has strained water systems throughout the Southwest. As soils dry out, crops and vegetation are also stressed. As vegetation dies out, less evaporative cooling takes place, decreasing the moisture entering the atmosphere, resulting in fewer clouds, creating negative feedback loops and amplifying the drought (Southwest Climate Science Center Workshop, 2017).

Signs of extended drought, water mismanagement, and overuse abound, including declining groundwater and reservoir levels, desertification, hotter and dryer seasons, "structural deficit" (there is more Colorado River water allocated than is available), continually increasing populations (with Southwest cities being some of the nation's fastest growing), and depleted water supplies for ranching and agriculture. All of these serve as indicators of a looming water crisis, where ecosystems and human systems are driven beyond their thresholds. Across the region, there is increased discussion of water crisis and concern about a dire water future for the Southwest.

THE COLORADO RIVER: "ONE OF THE HARDEST-WORKING RIVERS IN THE WEST"

Originating as snowmelt at as high as 14,000 feet above sea level in the mountains of western Wyoming, central Colorado, and northeastern Utah, the Colorado River moves through the Canyonlands of Utah into Northern Arizona, carving out the Grand Canyon. It weaves through the drylands of the desert Southwest, forms the Arizona-California border, and finally

FIGURE 0.2. Over the past 25 years, the Salton Sea has decreased to one-third of its original water volume. In the past decade alone, the sea's area diminished by 38 square miles. Various factors have fueled this decline, including the state's drought conditions and the diminishing levels of the Colorado River. (Photograph by Janine Schipper)

BOX 0.1. MEGADROUGHT

Between AD 1000 and 1450, the Southwest United States experienced what scientists have come to call a "megadrought," a series of prolonged droughts, each lasting two decades or longer. During megadroughts we see less rain, depleted rivers, and dry fire-prone forests. Today, the Southwest faces what climate scientists warn may be another megadrought, the first in over 500 years, beginning in 2000 and with no end in sight. Park Williams, professor of bioclimatology at Columbia University, referencing his team's report on the latest megadrought, reports that the current drought is 62 percent more severe than it would have been without human-driven climate change (Meyer, 2018). The Intergovernmental Panel on Climate Change (IPCC) reported in 2021 that rapid warming due to human activities are leading to an intensification of the water cycle, with extreme flooding and rainfall in some regions and extreme drought in other regions (IPCC, 2021). The 2023 IPCC report indicates that approximately 950 million people residing in arid regions are expected to grapple with water stress, heat stress, and desertification. Nearly half of the world's population already faces severe water scarcity for at least one month annually (IPCC, 2023).

enters Sonora Mexico, where it once permeated and spread through an expansive, lush delta and emptied into the Gulf of California.[1]

In 1922, Aldo Leopold canoed the Colorado's verdant delta and described a "milk and honey wilderness" (Leopold, 1949/2020, p. 135) that filled him with a sense of awe as he beheld "a hundred green lagoons" (Leopold, 1949/2020, p. 131) where up to four hundred plant species and a plethora of birds, fish,

1 To explore additional literature on the social, cultural, political, and historical aspects of the Colorado River, please refer to the following sources: Simon Boughton, *The Wild River and the Great Dam: The Construction of Hoover Dam and the Vanishing Colorado River* (2024); Wade Davis, *River Notes: A Natural and Human History of the Colorado* (2023); Christian S. Harrison, *All the Water the Law Allows: Las Vegas and Colorado River Politics* (2021); Eric Kuhn and John Fleck, *Science Be Dammed: How Ignoring Inconvenient Science Drained the Colorado River* (2019); Cecil Kuhne, *River Master: John Wesley Powell's Legendary Exploration of the Colorado River and Grand Canyon* (2017); David Owen, *Where the Water Goes: Life and Death along the Colorado River* (2018); April R. Summit, *Contested Waters: An Environmental History of the Colorado River* (2013); Eric B. Taylor, *Rivers Run through Us: A Natural and Human History of Great Rivers of North America* (2021).

and mammals, including the great jaguar, once lived. While the delta of Leopold's wanderings spanned nearly 3,000 square miles, now it covers 250 square miles. Today, aside from the alfalfa and green onion fields, the Colorado River Delta, as described by journalist Ian James, is a "dry riverbed (that) spreads out in a dusty plain where only gray desert shrubs survive" (James, 2020).

Recognized at the turn of the twentieth century as a source for economic development and the key to westward expansion, the once wild Colorado has become one of the most managed rivers in the world. The 1,450-mile-long Colorado River currently serves about 40 million people, irrigates over 7,000 square miles of farmland (5.5 million acres), supports a $5-billion-a-year agricultural industry, and serves as the main water source for thirty federally recognized tribes, seven national wildlife refuges, four national recreational areas, and eleven national parks. The Colorado River also contributes to the Southwest's power grid, providing 4,178 megawatts of electricity to support over 782,000 households with hydropower (Thiel, 2013).

Not only is the Colorado "one of the hardest-working rivers in the West" (Nature Conservancy, n.d.), the Colorado River is also considered one of the most threatened and was named in 2013 by American Rivers as "America's Most Endangered River." The organization pronounced, "Demand on the river's water now exceeds its supply, leaving the river so over-tapped that it no longer flows to the sea" (American Rivers, 2013).

Over the past century, rising temperatures and longer periods of drought have resulted in a 20 percent decrease in the Colorado's annual flow (Milly, 2020), with scientists predicting a 40 percent decrease in the coming years. Since 2000, there has been less precipitation, including less snowmelt, which constitutes 75 percent of the Colorado's annual flow. Although agricultural lands compose a small percentage of rural land throughout the region (less than 8 percent of nonfederal rural land), they use approximately 80 percent of the region's water (USDA, 2020), and this includes over 80 percent of Colorado River water. Agricultural use combined with the needs of a growing population places additional stress on the river.

The two main reservoirs, Lake Mead and Lake Powell, have been steadily dropping due to decades of overuse, drought, evaporation from higher temperatures, and decreased snowpack in the Rocky Mountains. As the water levels drop, mineral deposits are left behind on the cliffs that surround the reservoirs, causing the infamous bathtub rings, powerful visuals symbolizing the precariousness of water in the Southwest. Lake Mead experienced a twenty-three-year downward trend. In July 2022, Lake Mead hit its

lowest elevation level since the onset of the drought, plummeting to 1,040 feet (Bureau of Reclamation, 2022). Should the reservoir continue to fall and reach 950 feet, it will stop generating electricity. It will be considered a "dead pool" if it dips below 895 feet, profoundly impacting the millions of people who depend on it. As of April 2023, following an exceptionally wet winter, the US Bureau of Reclamation's five-year probabilistic forecast indicated that Lake Mead has a 50 percent chance, and Lake Powell has a 17 percent chance, of reaching critically low reservoir elevations by 2027 (Bureau of Reclamation, April 27, 2023). Despite the 2023 wet winter contributing to an increase in water levels at Lake Mead and Lake Powell, drought conditions persist. To contextualize the impact of a single favorable year, the Bureau of Reclamation has indicated that the water levels of Lake Powell and Lake Mead would experience a modest increase of 3 percent (Bureau of Reclamation, April 20, 2023).

The Colorado River is also one of the most highly contested and litigated rivers in the country. Throughout the last century, the allocation of Colorado River water has been a contentious issue involving not only the seven Colorado River states and thirty Colorado River tribes but also a diverse array of other stakeholders. This includes individuals such as irrigators, businesses, civic advocates, politicians, ranchers, government officials, engineers, and, more recently, environmental organizations and recreational users, all vying for influence in decisions regarding Colorado River water distribution (National Resource Council, 2007). Furthermore, the Colorado is overallocated. This means that there is less water in the Colorado than the states, tribes, and Mexico have rights to. To learn more about the issues around water rights and overallocation, see textbox 2.2, "Water Rights and the Law of the River," in chapter 2.

The other principal river in the Southwest, the Rio Grande, originates in the Colorado Rockies, runs 1,896 miles, and culminates in the Gulf of Mexico. As with the Colorado River, unprecedented drought combined with continued water demands have placed the Rio Grande in grave danger. In the summer of 2022, for the first time in forty years, the Rio Grande went dry in Albuquerque.

Real work needs to be done. After witnessing over twenty-four years of drought, and based on many years of researching and contemplating water sustainability in the Southwest, I feel skeptical about the main approaches driving decisions around how to create a more sustainable water future. I'm not sure that modifying laws, negotiating better ways to share the little water

available, raising water prices, and launching conservation campaigns are going to be enough to solve the problems we face.

The Research for This Book

I am not trained in water management, conservation ecology, hydrology, geology, or any of the sciences typically involved in understanding and solving problems related to water. I am a sociologist. I am interested in people, our attitudes, beliefs, and underlying assumptions and behaviors, and in how we solve problems. As an environmental sociologist, my research has been devoted to exploring people's relationships with water and how the underlying assumptions about nature impact the way people relate with water and live on these lands. In my work with the public, I seek to facilitate discussions and debates that challenge taken-for-granted assumptions about water conservation. My aspiration for this book is to serve as a catalyst, inspiring individuals throughout the region to thoroughly scrutinize deeply ingrained assumptions, actively listen to diverse perspectives, contemplate fresh possibilities, and participate in meaningful dialogues about water in the Southwest.

Sociology provides a unique perspective on water issues by recognizing that they are not only technical or environmental problems but also rooted in social and cultural factors. By exploring the social and cultural factors that shape attitudes and behaviors toward water use and conservation, sociologists can help individuals and communities understand the broader structural and cultural factors that contribute to water challenges in the Southwest. This approach challenges the prevalent focus on individual behavior and lifestyle change and highlights the need for systemic change, including policy reform.

By promoting critical engagement, sociologists can help individuals gain a more nuanced understanding of the complex social dynamics involved in water issues and identify culturally appropriate solutions. Additionally, the sociological perspective can help policymakers, water managers, and conservationists question their assumptions, critically evaluate their approaches, and develop effective strategies for water sustainability that are informed by cultural considerations.

Despite the crucial role that sociology plays in understanding the social dimensions of water issues, this perspective has been largely overlooked in

current discussions. Instead, the dominant discourse has prioritized technological and economic approaches, often neglecting the social dimensions of the issue. By incorporating sociological perspectives, a more comprehensive understanding of the complex social dynamics involved in water conservation can be achieved, which may lead to the identification of new possibilities and more effective solutions.

After fifteen years of drought, the sociologist in me began to wonder: How do others relate with water in this arid region of the world? What types of attitudes prevail? What wisdom is available that can guide us as we navigate this tenuous water reality? It is with these concerns, questions, and contemplations that I sought to understand how those living throughout the Southwest relate with water.

I also had a more personal reason for conducting this research. I wanted to reflect upon living in this arid region of the world. I wanted to consider what it means to love a place fiercely while knowing that, by living here, I contribute to impending water crisis. I wondered what others talk about when considering the severity of the situation. Were they concerned? Did they seek solutions? I wondered if I could get a pulse on the situation, understand the inner workings of the collective, and come out on the other side of this research with some clarity and some water wisdom to offer in pursuit of a sustainable water future.

GATHERING WATER NARRATIVES

And so, as part of exploratory research aimed at gaining a fuller understanding of the complex social dynamics involved in water issues, I began a research project with the goal of gathering "water narratives," which encompass people's stories, experiences, and relationships with water. Exploratory research is a preliminary investigation that seeks to generate insights, raise questions, and gain a broad understanding of a complex phenomenon.

Over the course of three years, 178 students became involved in the project of gathering water narratives from ninety-five individuals living throughout the Southwest. Most of the participants in the study live in Arizona, but we also collected water narratives from those living in California, southwestern Colorado, New Mexico, southern Nevada, southwestern Texas, and Utah. Participants came from a wide range of backgrounds, including a variety of cultures, ethnicities, ages, socioeconomic backgrounds, professions, political

orientations, and educational levels. We interviewed water experts including hydrologists, earth scientists, municipal water treatment managers, and water conservationists.

We were not only interested in talking with those whose careers centered around water. We wanted to gather water narratives from individuals from all walks of life. We wanted to learn about the perspectives of farmers, cattle ranchers, developers, and others whose work centered around access to water. But we also interviewed an Uber driver, a hairstylist, a firefighter, a waiter, and a beekeeper. We interviewed a justice of the court, university professors, K–12 teachers, retirees, college students, an employee of an animal shelter, a camp owner, a botanical garden curator, and a ski instructor, among others. We interviewed people from a range of ethnic backgrounds, including European Americans, Indigenous Americans, Mexican Americans, African Americans, and one Pacific Islander. The ages of the interviewees ranged from eighteen to eighty-five years old. For research overview and summary of participant demographics, please see appendixes A and B.

The one universal value that defined ways of thinking about and relating with water, which spanned this cross-section of Southwestern life, was conservation. Without exception and without ever using the word *conservation* in any of the interview questions, all participants not only mentioned conservation as a core value but also expressed a belief that water conservation was critical to the future of life in the Southwest. Furthermore, each participant identified ways in which they practiced water conservation. No matter what their political orientation, age, ethnicity, profession, or educational attainment, participants were not only interested in conservation but also embraced conservation efforts to varying degrees. It appears that a conservation ethos has permeated the culture.

I became intrigued by this interest, this devotion to conservation as if it were a kind of holy grail, a strong moral precept, something that could save us. If it were, then why hasn't it? After all, water conservation has a long history, rooted in the early conservation movement of the 1850s, which ignited an interest in maintaining the scenic lands and waterways of the West.

The widespread interest in water conservation raises many questions: What do people mean when they say they value and practice water conservation? How did it get to the point where conservation appears to be universally valued? Is conservation enough to avert water crisis? What needs to be valued if conservation is not enough?

BOX 0.2. INTERVIEW QUESTIONS

1. What three words come to mind when you think of "water"?
   Can you tell us a little bit about why you chose each of those words?

2. What are your earliest memories of water?

3. Tell me about water where you currently live.
   Where does your water come from?
   How do you use water?
   Are there any restrictions on water use where you live?

4. Are there any community issues related to water or water use? What are the main issues? For each of these issues, what is your opinion or stance?
   Describe any involvement you've had at the community or grassroots level in shifting water policy.

5. Do you think there are water shortages in the Southwest?
   If yes, who or what is most responsible for creating the water shortages we see in the southwest?
   Who or what is most responsible for addressing these water shortages?

6. What do you think water looked like in this area one hundred years ago?

7. What do you think that water will look like in this area in one hundred years?

8. Have you ever changed the way you use water (whether recreationally, for landscape, or for home use)? What inspired those changes?

9. How would you define a "water ethic"? What does a "water ethic" look like to you? What's an appropriate relationship between human beings and water?

10. Do you practice a water ethic—or, how would you assess yourself in relation to your definition of a water ethic? Does your community practice a water ethic?

Central Theme: Challenging the Culture of Water Conservation in the Southwest

The research the students and I conducted over the past eight years suggests that a fundamental shift in perspective is needed to address the water challenges in the Southwest effectively. Despite the prevalent emphasis on conservation, evidenced by diverse individuals expressing their commitment to water conservation efforts, this book maintains that the utilitarian approach tied to conservation falls short of adequately addressing the region's dire water situation.

As we will see, the conservation mindset that has taken root prioritizes the utilitarian view of water as a resource to be measured, collected, moved, and utilized with economic efficiency. This approach, while not inherently negative, primarily focuses on cost-saving incentives and water efficiency, often leading to paradoxes where efficiency inadvertently results in increased water usage as conservation efforts create opportunities for further growth.

As we grapple with increasingly severe climate conditions and concerns about dwindling water levels in the Colorado River, it becomes evident that a mere utilitarian approach to conservation may not suffice. As readers engage with this book, it is my hope that they will grasp the importance of moving beyond the established conservation paradigm and consider a more transformative perspective when addressing the pressing water challenges facing the Southwest.

This shift entails moving away from an anthropocentric and utilitarian conservation ethos toward embracing a deep ecology ethos. Deep ecology advocates for a holistic view of the environment, considering the intrinsic value of all living beings and emphasizing interconnectedness and interdependence within ecosystems. Such a perspective challenges us to move beyond exploitation and prioritize a more balanced coexistence within the Earth's ecosystems.

To facilitate this transformation, the book recommends finding inspiration in Indigenous communities that have survived in arid landscapes for countless generations. These communities exemplify a relationship with water that transcends the utilitarian paradigm and the established approaches to conservation. Amplifying Indigenous leadership and integrating Indigenous wisdom could catalyze a paradigm shift toward a more holistic, interconnected, and relational approach to water issues in the Southwest. While drawing

inspiration from Indigenous models and leadership is crucial, it's equally vital not to burden Indigenous communities with the sole responsibility of "saving" us from the ecological challenges we currently confront.

Ultimately, in order to navigate the complex and urgent water crisis, a profound shift in perspective is necessary. The shift suggested throughout this book involves embracing a deep ecology ethos, learning from Indigenous knowledge systems, and transitioning toward a more interconnected and relational approach to water that goes beyond conventional conservation efforts.

Understanding Conservation and Its Theoretical Dimensions

The term *conservation* is generally thought of as "the care and protection of [the Earth's] resources so that they can persist for future generations" (*National Geographic*, n.d.). Conservation involves regulating social systems so as to prevent ecological destruction, including loss in biodiversity and habitat destruction. Ultimately, water conservation is the practice of using water efficiently to protect water resources so that they are available for future generations.

In the southwestern United States, where water scarcity is a constant concern, the history of water conservation can be traced back to ancient Indigenous practices. Indigenous American tribes such as the Hopi and Navajo demonstrated an early understanding of the need for responsible water stewardship, through methods like terraced farming and the construction of intricate irrigation systems.

Upon their arrival, European settlers implemented a formalized and structured approach to water conservation efforts. The construction of dams and reservoirs in the late nineteenth and early twentieth centuries, like the Hoover Dam on the Colorado River, marked a pivotal moment in water management in the Southwest. These structures not only provided a stable water supply for growing urban populations but also facilitated the expansion of agriculture in the region. To provide water in this arid region of the world, water conservation practices became essential.

In recent decades, the challenges posed by prolonged droughts and increased demand for water resources have led to a renewed focus on water conservation in the Southwest. This has resulted in the adoption of various water-saving technologies, such as low-flow fixtures and xeriscaping, as well as the implementation of water-use regulations. The idea of conservation

has evolved to encompass not only individual water-saving practices but also broader policies and community efforts aimed at ensuring a continual water supply in the face of growing environmental pressures.[2]

In our exploration of water conservation, its promise, and its shortcomings, several theoretical models are employed—social construction of conservation, deep ecology, and environmental justice theory—to provide a more complex understanding of this critical subject. These theoretical models act as lenses through which water conservation is analyzed and approached, shedding light on the underlying philosophies, ethical considerations, and practical implications that guide conservation efforts.

SOCIAL CONSTRUCTION OF CONSERVATION

This perspective recognizes that our understanding of water conservation is not a fixed, objective truth but rather a concept shaped by cultural, historical, and political factors. By examining how conservation ideas and practices are socially constructed, we gain insight into the biases, power dynamics, and cultural influences that underpin our approach to water conservation. This lens challenges us to critically assess the values and interests embedded in conservation efforts.

DEEP ECOLOGY

Deep ecology advocates for a transformation in our relationship with nature, emphasizing an eco-centric worldview. This model is central to the analysis presented in this book, as it calls for a shift from a utilitarian view of water as a resource to be exploited to a perspective that recognizes the intrinsic value of water and all living beings. By promoting a deep and interconnected relationship with the natural world, deep ecology challenges us to reorient our conservation efforts toward a more holistic and sustainable approach.

2 To delve further into literature regarding water conservation in the Southwest, please refer to the following sources: John Fleck, *Water Is for Fighting Over, and Other Myths about Water in the West* (2019); Robert Glennon, *Unquenchable: America's Water Crisis and What to Do about It* (2009); Heather Hansman, *Downriver: Into the Future of Water in the West* (2022); Allison Lassiter, *Sustainable Water: Challenges and Solutions from California* (2015); Sandra Postel and Brian Richter, *Rivers for Life: Managing Water for People and Nature* (2003); Brian Richter, *Chasing Water: A Guide for Moving from Scarcity to Sustainability* (2014); Melissa Sevigny, *Mythical River: Chasing the Mirage of New Water in the American Southwest* (2016); Juliet Stromberg and Barbara Tellman, *Ecology and Conservation of the San Pedro River* (2012).

ENVIRONMENTAL JUSTICE THEORY

Environmental justice theory holds a fundamental place in an exploration of water conservation in the Southwest. By addressing the disproportionate impact of environmental degradation on marginalized communities, with a particular emphasis on Indigenous communities of the region, this lens highlights the ethical dimensions of water conservation. Environmental justice compels us to consider not only the ecological aspects but also the social and economic dimensions of water conservation, with the aim of ensuring that vulnerable populations are not unfairly burdened by environmental issues.

This book draws on environmental justice theory in a way that includes but also goes beyond its traditional focus on equitable resource distribution. Environmental justice theory plays a key role in revealing how the colonial origins of conservation practices contributed to the silencing and marginalization of Indigenous voices, as well as the undervaluing of Indigenous people's ways of knowing and their holistic relationship with the environment. The theory emphasizes their unique knowledge systems and spiritual connections to water, frequently devalued in conventional conservation approaches. This exploration of Indigenous wisdom enriches the conversation about water conservation.

Additionally, an environmental justice lens directs our gaze toward the growing influence of Indigenous leadership in contemporary conservation endeavors. It spotlights the strides made by Indigenous leaders in advocating for their communities' rights and their sacred connection with water. Their leadership inspires more inclusive and equitable conservation practices.

The Flow of the Book

> This writing will be like a river, winding its way through different landscapes and concepts to show the importance of remaining connected to the world we inhabit and call home.
> —*Lyle Balenquah, Hopi, member of the Greasewood Clan from the Village of Bacavi on Third Mesa*

As the narrative unfolds through each chapter, readers are guided on a journey, beginning with the cultural foundations of conservation and culminating in the realization of the imperative need for a shift in our relationships

with water in the arid Southwest. The chapters progressively build upon one another, collectively presenting a case for transforming our perception and approach to water issues. Each chapter opens with a collection of "Voices," featuring quotes from participants that highlight a range of perspectives and introduce the themes of the chapter.

Chapter 1, titled "A Culture of Conservation," embarks on a journey to unravel the complex cultural backdrop that molds dominant perspectives on water conservation. It delves into the fundamental question of "How do we think about water?" and explores the cognitive dissonance that often underlies conservation efforts, enabling us to justify our lifestyle choices while maintaining a business-as-usual approach to water despite mounting concerns. The chapter delves into individual and federal initiatives in water conservation, shedding light on the challenging decisions many of us confront when tasked with conserving water. Additionally, it scrutinizes the culture of conservation from various angles, including water management, conservation science, and a spectrum of high-tech and low-tech solutions. This exploration of the culture of conservation lays the foundation for a critical examination of the values and assumptions that underpin our approaches to water conservation.

Chapter 2, titled "The Limits of the Conservation Ethos," peels back the layers of the conservation ethos to uncover its inherent values and their associated limitations. It scrutinizes the common usage of the term *resource* for water, prompting reflection on the consequences of treating water as a mere object for utilization and wealth generation. This perspective often results in indifferent treatment of water until our own well-being is directly impacted. The chapter explores a range of other conservation values, including the perception of water as a commodity, the importance of ownership and rights to water, the value placed on efficiency, and the pursuit of unceasing growth. This exploration offers insights into the challenges posed by the conservation mindset, setting the stage for a critical examination of the ethos's origins.

In chapter 3, titled "The Origins of the Conservation Ethos," we take a historical perspective to unravel the influence of a colonial mentality on prevailing water conservation approaches. This investigation reveals how historical undercurrents propelled the belief in the need to subdue the "uncivilized wilderness" and establish water ownership through "prior appropriation" rules and laws. The chapter culminates in a poignant exploration of how the erasure of Indigenous water wisdom served as the cornerstone for the conservation ethos that permeates our present approach.

Chapter 4, titled "Indigenous Water Relationships," explores an Indigenous water ethos, highlighting its stark differences from mainstream conservation efforts. This chapter emphasizes present-day possibilities for learning from Indigenous wisdom and leadership. It underscores core Indigenous values such as respect and reverence, valuing water as a living being, and the importance of ancestral knowledge, juxtaposing them with Western values centered on utility and efficiency. The chapter places importance on the transmission of knowledge and water wisdom through generations, illuminating the interconnectedness of water within Indigenous cultures. It concludes by delving into the notion that water communicates with humans and can be engaged through ceremony, prayer, and storytelling, forging a deep connection with the water world.

In chapter 5, the pivotal chapter, titled "Rethinking Water Relationships in the Arid Southwest," we embark on a shift in perspective concerning our relationship with water in this region. The chapter begins by questioning whether our current interactions with the natural world are rooted in love, respect, and reciprocity or driven by fear and opportunism. The concept of a water ethic is introduced, drawing inspiration from Aldo Leopold's land ethic and extending it to water, emphasizing interconnected caring relations among water and all beings.

Our journey delves into the possibilities of a relational water ethos, grounded in the principles of deep ecology and enriched by Indigenous knowledge systems. Within this context, the chapter explores the intimate interconnectedness of all life-forms, emphasizing the importance of systems thinking. Furthermore, evolving perspectives on water rights and the concept of legal personhood for water bodies are investigated, showcasing communities that have embraced this idea. The chapter also examines the burgeoning recognition of water's sacredness within the dominant culture and its implications. Chapter 5 concludes by challenging the conquest mentality, advocating for a shift toward a relational mindset and highlighting the vital role of community-driven water conservation systems like acequias. Finally, it discusses the growing influence of Indigenous leadership and raises thought-provoking questions about the future of water sustainability in the arid Southwest.

Our journey comes to a reflective conclusion in the epilogue, titled "The Song of the Water," inviting contemplation of the transformational possibilities that arise when embracing a more relational approach to water.

Notes to the Reader

My intention for writing this book is to share the many voices from my research, and some of what I have learned during the process of exploring cultural perceptions of water in the Southwest. While the main message of the book is in its title, *Conservation Is Not Enough*, I do not mean to suggest that conservation should be scrapped or that it is not important. I want to acknowledge here the incredible efforts, contributions, care, and concern forged by many conservationists. Many of today's conservationists are deeply connected to the world they are trying to conserve. They have made it their life's work, as Aldo Leopold did in the 1930s and 1940s, to care for the world they love so dearly. I recently met some young environmentalists who are helping farmers switch from alfalfa farming (water intensive) to barley farming (which uses less water) in an effort to conserve water. They spoke passionately about their love of water and land and their efforts to help and "be the change they want to see in the world."

Before each of the chapters, I have included the voices of participants in response to specific interview questions. By sharing these chapter-opening quotes as well as respondent quotes sprinkled throughout the book, I hope that readers will gain a sense of the many voices and multiple perspectives that arose in the interviews. I have used pseudonyms and removed certain identifying information to maintain confidentiality. We offered participants an option to choose their own pseudonyms. I have included the pseudonyms that participants chose (some of which may appear unusual, like "Curious Coyote") in order to maintain and respect participants' approaches to identifying themselves.

In this book, I have included my personal reflections on water conservation, as well as my own approaches to addressing this issue. As a qualitative sociologist, I recognize the importance of reflexivity in conducting sociological qualitative research. This involves questioning my own assumptions and critically reflecting on how my own background and perspectives shape the way I perceive and interpret information.

Furthermore, I believe it is valuable for readers to gain insight into my personal journey and struggles regarding my approaches to water conservation. Through this research and my interactions with numerous individuals throughout the region, as well as the time I have spent with various bodies of water, I have undergone personal growth and experienced a shift in my

perspectives. Sharing these experiences allows readers to understand the transformative impact that engaging with the subject matter has had on me.

Whenever possible, I have specified tribal affiliations of participants and scholars cited throughout this book. I use the term *Indigenous Americans* to indicate the original inhabitants of US land prior to European occupation and settlement. Indigenous respondents sometimes refer to themselves as "Indigenous," "Natives," "Native Americans," and "Indians." I use the name Diné throughout this book, as this is how the Diné refer to themselves. Navajo, the Spanish name for the Diné, is at times also used by respondents.

At times I use the term *more-than-human world* in addition to the more common terms *nature* or *environment*. Ecologist and philosopher David Abram coined the phrase "more-than-human world" in 1996 in his book *Spell of the Sensuous: Perceptions and Language in a More-than-Human World* (Abram, 2012). Since then, other scholars and environmentalists have adopted the term instead of the words *nature* or *environment* to indicate that human culture is a subset within a larger "more-than-human-world" on which it depends.

FIGURE 0.3. *(opposite)* Diminishing snow levels due to climate change pose a growing threat to the vital role of snowmelt in replenishing the Colorado River. (Photograph by Janine Schipper)

VOICES

How do you use water?

Are there any restrictions on water use where you live?

Have you ever changed the way you use water?

We collect water off our roof and then I use that water. I take it in five-gallon buckets from outside and I use it to flush the toilet. When I'm taking a shower, I just save my shower water. If it's like really grungy gray-looking, then I'll use it to flush the toilet, and if it's not that bad then I'll do my handwashing in it.

—Kaibab, fish restoration technician / social worker, Flagstaff, Arizona

The girl at the forest service building would call and tell us that the trees were dying—huge cottonwood trees. Forest services depended on the wastewater to keep the trees alive. So sometimes we had to shut the water off to the golf courses, because the water waste treatment plant in this area gives 90 percent of the water to the golf courses. Working in wastewater and seeing how much a golf course uses has made me monitor and think about how much I use at home.

—Dean, retired wastewater manager, Cornville, Arizona

Conservation might not exactly be done for the right reasons in construction. It's being done to make a profit; however, it is being done.

—Eric, construction project manager, Scottsdale, Arizona

What inspired my efforts to conserve? Love. Love of this place, the community of relationships, that which gives me life. I'm using the word *love* in its full range of application, but it includes generosity, reciprocity, caring, and gratitude.

—Cactus Ed, program director of a nonprofit environmental organization, Flagstaff, Arizona

I didn't take a five-minute shower to lower the water bill. It was more just like me trying to be good.

—Abby, College Republicans, Flagstaff, Arizona

Agriculture in Imperial County has changed an awful lot in forty-something years. There are people now that grow more tons per acre of alfalfa than their fathers did thirty years ago, and they're using a fourth of the water. I mean think about that: they've cut it down to 25 percent and they're growing double the amount of tonnage. That's crazy, crazy good. And that's just through education and improvements in technology and people really embracing the proper use of water. And developing a disdain for misuse of it.

—Parker, Native American farmer, Poway, California

All of the conservation efforts add up to make a big difference. There's a lot of small efforts that all add up to help save water where we can. There are efforts to encourage people not to have the big lush green lawns that just soak in water, so changing your landscape to be more water-friendly. There are programs to convert old shower fixtures with low-flow fixtures . . . things like that.

—Gomez, retired construction worker, Phoenix, Arizona

Where I come from in Mexico, in Chihuahua, which is a dry state located in the desert part of the country, there are campaigns to conserve water. And at certain times the water is cut. So you have to be prepared to get what you need. You need to have containers; we call them *tinacos*, which is a big container that you keep in your roof to store water for when the water is cut. And then there's a reserve of water. The reserved water is used for your household, when there's no running water. When they cut it. So you have to have those containers in order for you to have access to water. Clean water.

Since I've been in the US, I've had periods of time when I was really busy. It was really easy for me to just grab a ready-to-go water bottle, instead of taking the time to fill my own bottle, taking, I don't know, one minute, of time to fill my water bottle from the sink. But then I was like, "what am I doing? This is totally wrong." I remembered my life in Mexico. And now, I just get water from the fountain.

—Yaaxfin, mother and ecology student, Flagstaff, Arizona