

The Arizona Water Adventure Book

By Wayne Drop



THERE ARE A NUMBER OF WAYS TO SAVE WATER, AND THEY ALL START WITH YOU!



Follow Wayne Across Arizona

When you're the official spokes-drop for Water – Use It Wisely in Arizona, your opportunities to learn and have fun in our state never run dry. Luckily for us, Wayne Drop is always on the lookout, exploring Arizona to fill us up with ways to make smart water use fun, easy, and practical.

And just when Wayne thought he had seen it all, he was flooded with hundreds of amazing photos of beautiful watery scenery from across Arizona in the recent Celebrate AZ Water photo contest. Being the adventurous droplet he is, Wayne decided it was time to see these sites for himself. Lakes, rivers, reservoirs, canyons – Wayne splashed down in them all, and now you can follow along and read from his journal he kept along the way.

Hopefully you will learn about some important places in our home state and get excited about saving water too – just like Wayne Drop!

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Wayne's Arizona Water Journal: Lake Havasu

The mighty Colorado River not only created the amazing Grand Canyon, but it also creates our fun, squiggly border between Arizona and California. When a **dam** is built along a river, it creates a **reservoir** that stores water for later use. That, I found out, is how Lake Havasu came about and why I was excited to visit Lake Havasu City.

WOW, there are a lot of fun things to do in Lake Havasu City! The Havasu Balloon Festival and Fair was taking place when I was there and giant balloons hovered around the water and the **London Bridge**...and I mean the real London Bridge...from London. Because these balloons kind of look like me, but upside down, I decided not to take a ride in one this time.

Instead, I visited Lake Havasu State Park and found beautiful scenic shoreline that included sandy beaches, nature trails, boat ramps, and even campsites! I ran into a really nice Park Ranger and learned that the word 'Havasu' is a Mohave Indian word that means 'blue water.'



Photo by: M. Showalter

Balloons, boats, and a bridge define this Arizona lake!

She said there are lots of really neat plants and birds and other animals here, but they are having trouble with some non-native plants and animals that can invade both the land and water causing local wildlife to fight for places to live and for things to eat.

One is a clam-like creature called the **quagga mussel**.

I wanted to learn more about the dam and lucky for me, she knew about that too. Apparently, the dam that created this lake (and reservoir) is called Parker Dam, and its other purpose is to split a portion of the Colorado River into two **aqueducts**. One pumps water into California and the other into Arizona. You may have seen and heard of the Central Arizona Project canal, also known as the CAP. Can you believe that it travels about 200 miles to bring water from Parker Dam to the Phoenix metropolitan area? This is one example of how the Colorado River provides water to many people in large cities and towns throughout the Southwest.

So what starts out as one of Arizona's playgrounds ends up helping us brush our teeth before bedtime. Isn't that cool?

Q: Lake Havasu wouldn't have been created without

A) A dam B) An aqueduct C) A bridge

What these words mean:

Dam - a barrier built across a stream or river to store and regulate the flow of water

Reservoir - an artificial lake where water is collected and kept in quantity for use

London Bridge - formerly crossing the River Thames in London, England, it was relocated in 1971 to Lake Havasu City, AZ

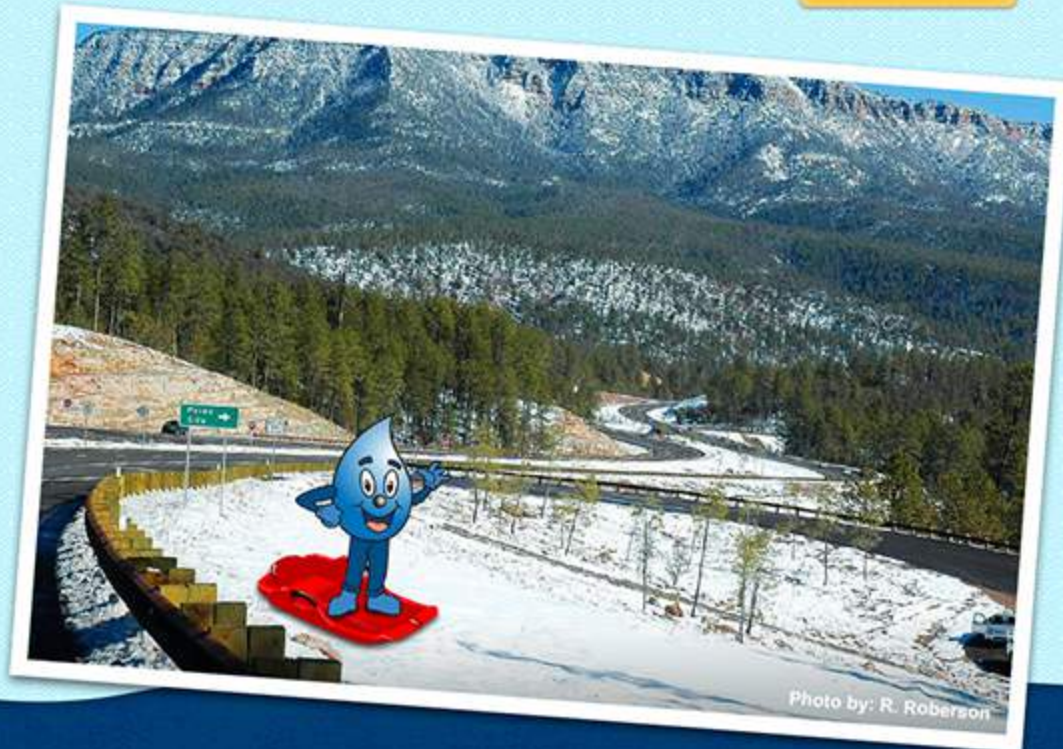
Quagga Mussel - a clam-like creature that consumes large amounts of microscopic (tiny) plants and animals starving our native species - first detected in 2007 and is now found in several other Arizona waters

Aqueduct - a large system like a pipe or canal for carrying water from one place to another

Wayne's Arizona Water Journal: Mogollon Rim

There's nothing more fun than going sledding! In February, I got to visit the Mogollon Rim (pronounced "Muggy - own"), a sheer cliff that runs a stunning 200 miles diagonally across Arizona. The rim is much higher in elevation, and that is why you can find snow up here even when it's warm and dry in Phoenix.

The Rim starts southwest of Flagstaff and travels through three National Forests all the way to the Arizona and New Mexico border. Every year, the rim gets 18-26 inches of **precipitation**, mostly falling as snow during the winter where "those flakes" tend to stick around as **snow pack**. But wait, I should back up a minute and point out that us water drops are like the original "Transformers"... you know the toys that can turn into different things? Well water can shape-shift into three different conditions: liquid, like me; solid, like ice or snowflakes; and gas, like steam or clouds.



The Mogollon Rim is the birthplace of many streams.

geologic history that created these cliffs. My ancestors carved this land through the process of **erosion**. I wonder how many water drops it takes to move all that rock and soil?

Because it was late winter, I decided to take a ride on some of the **snowmelt** that was running off the rim. Yikes! It was the steepest ride of my life, as I traveled about 2,000 feet down through creeks and streams along the way (Don't try this at home kids - I'm a water drop!).

Later, looking at a map, I saw that most of the streams flow from the rim into creeks and rivers that eventually join the Salt and Verde rivers and fill important reservoirs where water is stored. Can you believe it? It turns out the Mogollon Rim is the birthplace of some of my favorite rivers that support animals, plants, and communities of people living in the Valley of the Sun.

The first time I visited the rim, I was high up on a cliff and could see about 100 miles east, south, and west. (Don't look down, Wayne!) Digging around through the snow, I found pieces of **igneous**, **sedimentary**, and **metamorphic rocks**, evidence of a terrific

Q: When the snow melts off of the Mogollon Rim, where does it go?

- A) It flows until it reaches the San Francisco Peaks
- B) It flows in streams and creeks to join local rivers
- C) It flows into the San Pedro River in Tucson

What these words mean:

Precipitation - rain, snow, sleet, or hail that falls to the ground

Snow Pack - layers of snow that gather in very cold areas, usually at the top of a mountain

Igneous Rocks - rocks that are formed when magma from a volcanic eruption cools and becomes a solid

Sedimentary Rocks - rocks that are formed from the slow accumulation of material that eventually bonds together

Metamorphic Rocks - rocks that go through intense changes due to heat and pressure

Erosion - the gradual destruction of something by natural forces (such as water, wind, or ice)

Snowmelt - water from melting snow that becomes runoff, feeding streams and rivers

Wayne's Arizona Water Journal: Roosevelt Lake & The Salt River

I just got back from another adventure! This time I headed east to Roosevelt Lake because I had heard amazing stories about how it was created through the building of a huge dam across the Salt River. At the time, it was the biggest dam in the country.

I knew that it was named after President Theodore Roosevelt, who was in office during construction. It was really cool being in a place that had once been visited by a president. But, just like the water that lies behind the dam, I wanted to learn more about the story behind this incredible project.

At the Roosevelt Visitor's Center, I gazed at the spectacular lake and talked to the knowledgeable people who worked there. That's where I met a **civil engineer** who explained that before 1911, early settlers in the Phoenix area depended on water from the Salt River to grow citrus, cotton, and even farm animals like cattle.

A dam tames the Salt River, creating power and a place for fun and adventure.

But the river was not very reliable because in dry years it would trickle, and in wet years it would flood. That's because the Salt River collects water **runoff** from rain and snowmelt from nearby mountains. She also shared that when the **U.S. Bureau of Reclamation**

finished Roosevelt Dam in 1911, it allowed us to store water as a reservoir, or manmade lake, and release it slowly as needed. Just think... the water we drink in Phoenix may originate as snow in these mountains!

I was shocked at what the engineer told me next. She said that when the water behind the dam is released, it creates electricity through **hydroelectric generators**. Whoa! Did you know that you can get electricity from a water drop like me?

Though the lake has important functions, it also offers fun and adventure! My next stop was the Roosevelt Lake **Marina** for a boat ride, and that's where I ran into a helpful Arizona Game and Fish Wildlife Specialist. He told me cool facts about the great bass fishing here and that in some areas the lake is about 250-feet deep. I decided I'd better wear my lifejacket on the boat. Safety first, even for a water drop... I don't want to go shooting through one of those hydroelectric generators!

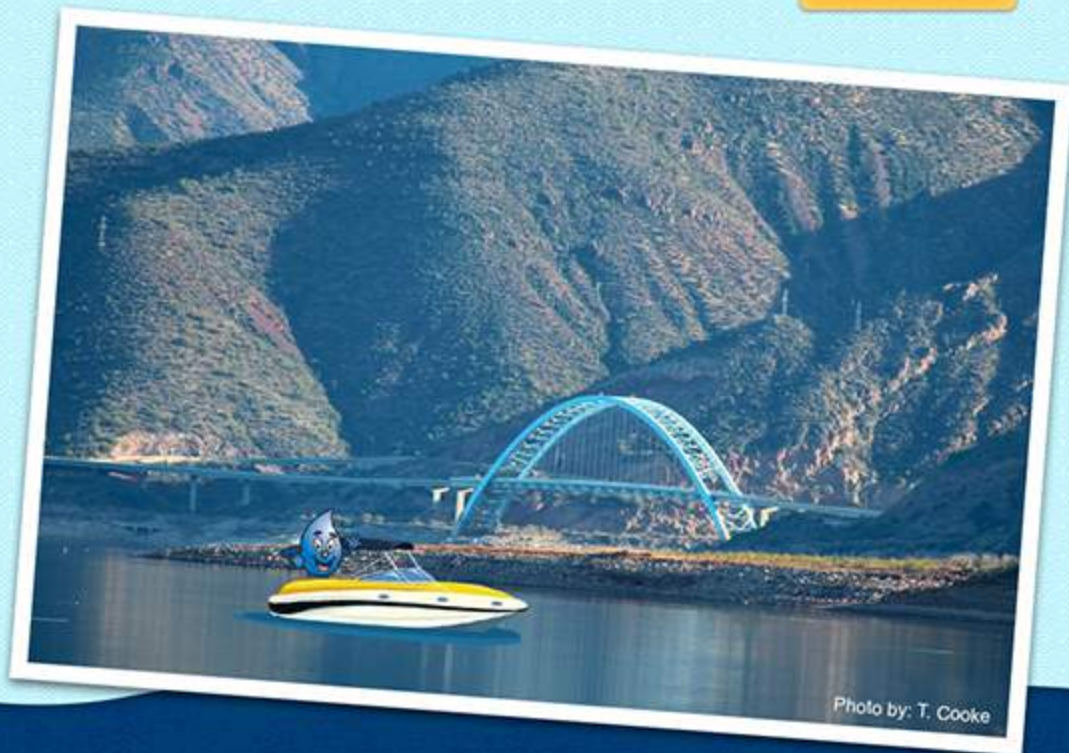


Photo by: T. Cooke

Q: What was the main reason for creating Roosevelt Lake?

- A)** For a fun place to boat and fish
- B)** To help farmers grow crops
- C)** To make electricity

What these words mean:

Civil Engineer - a type of engineering that is concerned with the design and building of roads, bridges, canals, and dams

Runoff - water from rain or snow that flows over the surface of the ground into streams

U.S. Bureau of Reclamation - an agency of the U.S. government that builds dams, power plants, and canals in the 17 western states

Hydroelectric Generator - machines that generate electricity by running water through a turbine or water wheel

Marina - an area of water where boats are parked and services are available

Wayne's Arizona Water Journal: Oak Creek & Slide Rock State Park

Last summer I had the most wonderful time floating down Oak Creek. You see, between the cities of Flagstaff and Sedona, right along the Mogollon Rim, there is a **gorge** called Oak Creek Canyon. As I floated on the beautiful water, I gazed up at the rocky walls on both sides and imagined how the water must have carved these steep cliffs over time, just like at the Grand Canyon! I wondered where the water in the creek came from and later learned that it starts from the trickle of a few **springs** near Flagstaff.

The best part of my trip happened once I arrived at Slide Rock State Park! So many kids waved at me as I floated by that I had to stop! The kids showed me how the bottom of the creek is made up of smooth, red sandstone. In fact, it's so slippery, we all took turns sliding down the natural water chute and landed in a nice, cool swimming hole.



How does snow melt from the mountains create a slippery slope of water fun?

An Arizona State Park Ranger took me and some of the other kids to visit an apple orchard nearby. It turns out that Slide Rock State Park is not just a great place to swim, but is also a natural **preserve**. In 1912, the Pendley family lived right off this land and

planted the apple orchard. The family parted with their land in 1982 so that it could be turned into a state park.

The Park Ranger explained why it is so important to take care of the park. He described how Oak Creek continues flowing past Slide Rock right into the Verde River, which makes it a **tributary** of that river. People living in a town called Cottonwood depend on the Verde River as drinking water. More amazingly, the Verde River is also a tributary of an even larger river: the Salt River, which is used as a source of water by farmers, homes, and businesses in the Phoenix Metropolitan area.

I am amazed at how the waters of Arizona are connected! Before I left, the kids and I picked up some trash to help keep the water clean for both nature and people.

Q: Where does the water in Oak Creek originate from?

- A)** From the Verde River near Cottonwood, AZ
- B)** From the Salt River near Phoenix, AZ
- C)** From springs near Flagstaff, AZ

What these words mean:

Gorge - a deep, narrow valley with steep rocky sides, often with a stream flowing through it

Spring - water that comes to the surface from groundwater

Preserve - a place where nature is protected for conservation, for research, and enjoyment of future generations

Tributary - a river or stream flowing into a larger river or lake

Wayne's Arizona Water Journal: Colorado River & Horseshoe Bend

I couldn't wait to take a river rafting tour on the magnificent Colorado River. Lucky for me, experienced guides offer tours of this amazing river that is known for its dramatic canyons and whitewater rapids. I began my trip near the town of Page, Arizona as it's close to where the Colorado enters the state of Arizona across the Utah border.

As we started lazily down the river, we came across a beautiful and interesting rock formation where the river takes a horseshoe-shaped turn off the main course. It's got the perfect name, Horseshoe Bend, and I can see why this is one of the most photographed places in Arizona. Our guide was very smart and explained the **geology** of the canyon walls as we passed by them, and he pointed out **landmarks** like **Lee's Ferry** and **Navajo Bridge**.



The Colorado is a **very** important river!

It wasn't long before we entered the incredible Grand Canyon National Park, and boy, it was hard to believe that this spectacular place was formed by the river made up of water drops like me! Our guide told us how this massive canyon came to be

formed by erosion taking place over millions of years. From the top to the bottom of the canyon is more than a mile! What a majestic and peaceful place. I'm so glad it's a National Park so that it is cared for and protected.

A little ways into The Canyon we tied our rafts on the river bank and found our way to **Phantom Ranch** where we stayed the night. While eating our campfire dinner, our guide shared more incredible facts. He said that the river is 1,450-miles long starting in the Rocky Mountains and ending in Mexico. The river also provides water for over 35 million people across the Southwest with 44 dams along its path, providing reservoirs or diversions of the water to populated areas. Now, that's an important river!

While roasting marshmallows over the fire, our guide quietly mentioned to our group how important it is to always save water. It's all of our jobs to save water and be responsible users of the river, so that people and wildlife will continue to benefit from this national treasure. I told you he was smart.

Q: How long is the Colorado River?

- A) 1,450 miles long B) Less than a mile long
C) 200 miles long

What these words mean:

Geology - a science that deals with the history of the earth as recorded in rocks

Landmark - the position of a prominent or well-known object in a particular landscape or location

Lee's Ferry - in the mid-1800's a ferry operator (yep, his last name was Lee) would transport horses and wagons across the water

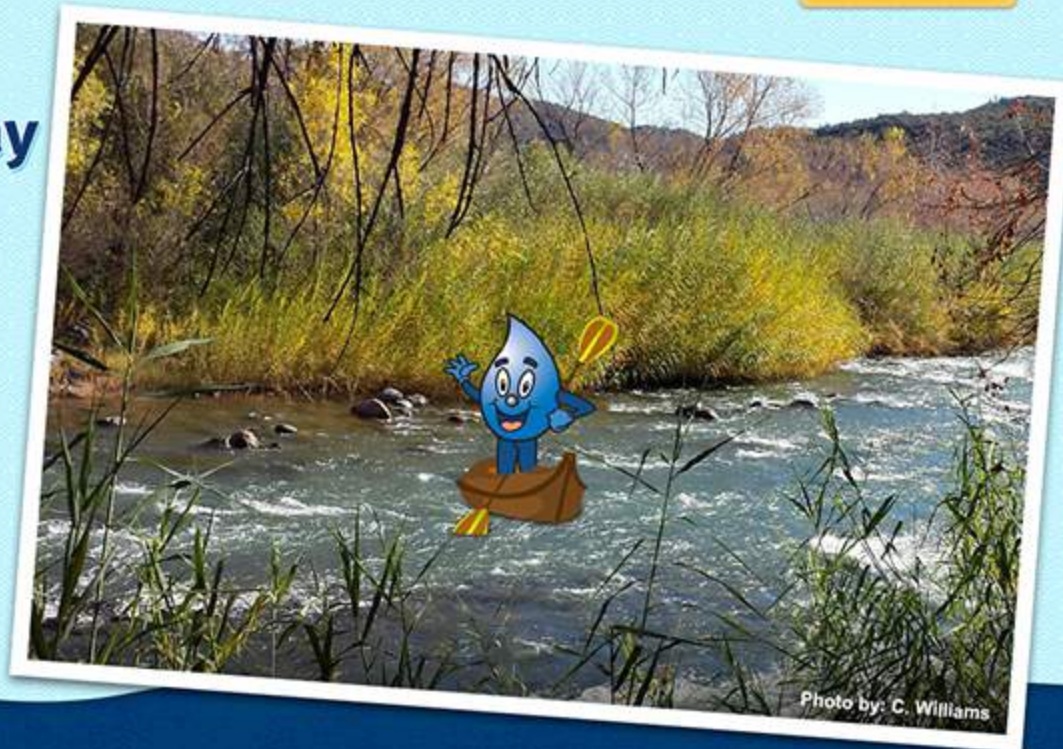
Navajo Bridge - the transportation bridge for Highway 89A was built across the river at the top of the canyon walls in 1929 for cars (now it's just used by people) and in 1995, a new bridge was built right next to it to handle the demands of more traffic

Phantom Ranch - a lodge located at the bottom of the Grand Canyon only accessible by mule, foot, or river raft (and by helicopter if necessary)

Wayne's Arizona Water Journal: Verde River & Verde River Greenway

My next stop, the Verde River, was much too ambitious for even a water mascot to do without help. Using a **kayak**, I began floating down the river starting from the town of Clarkdale to explore the Verde River Greenway State Natural Area. Although the entire river runs over 180 miles, I was very interested in the Greenway because I wanted to see the animals that lived in the **gallery forest** made up of dense groupings of cottonwoods and willows.

Along the river bank is a lush, **riparian zone** where some of the world's most amazing plants and animals live. It just makes sense that the Verde River is named for its lush vegetation. Did you know that 'verde' means green in Spanish?



The Verde River is Arizona's only wild and scenic river.

Leaning over carefully, I saw so many kinds of fish: desert suckers, carp, catfish, and even a mosquitofish. If I sat very quietly on the banks of the river, I could catch glimpses of many species of birds (including bald eagles), frogs, and the occasional **javelina**

family. At one point, I got out of the kayak to explore. I never saw a beaver at work, but I knew they were close by because I saw many small dams protecting **beaver lodges** or dome-shaped beaver homes. Near the dams and lodges, the water gathered and slowed its flow. In these pools of deep water, I noticed a lot more fish, birds, beautiful plants, and sometimes, when I was really lucky, river otters!

Before I left the Verde River, I whispered "thank you" to all the animals and plants that help clean our water and make the environment healthy. The Verde River is the source of drinking water for many communities, including people living in Camp Verde, Clarkdale, Cottonwood, and many Native American Tribal Lands. And, this same water flows right into the Salt River, which supports people living in the Phoenix area.

Later, I was so glad to learn that 40 miles of the Verde River is Arizona's only federally designated Wild and Scenic River. This means that the river will be protected to maintain its free-flowing condition for the enjoyment of present and future generations to come.

Q: What can you find along the Verde River?

- A) A dense cottonwood and willow forest
- B) Slide Rock State Park
- C) An apple orchard created by homesteaders

What these words mean:

Kayak - a small, narrow boat that can be used by one paddler using a double-bladed paddle

Gallery Forest - a dense forest of trees that lines both banks of a river in an otherwise treeless area such as grasslands or deserts

Riparian Zone - a special water dependent area along the bank of a river where diverse plants and animals can be found

Javelina - a medium sized hoofed animal that looks like a pig or wild boar

Beaver Lodges - homes that beavers build and maintain; if abandoned, river otters may move in