

ARIZONA WATER FACTSHEET

Yuma County

Get to know water in your county

November 2023



THE UNIVERSITY OF ARIZONA
COOPERATIVE EXTENSION

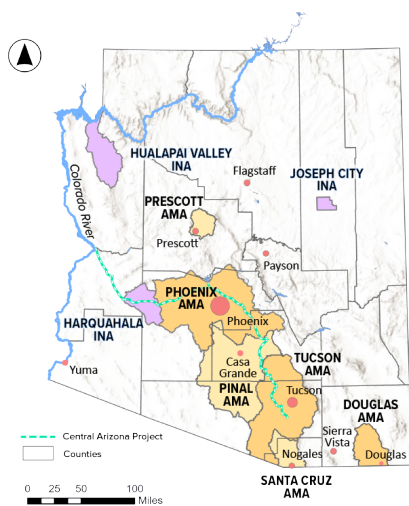
WATER RESOURCES RESEARCH CENTER

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Water in Arizona

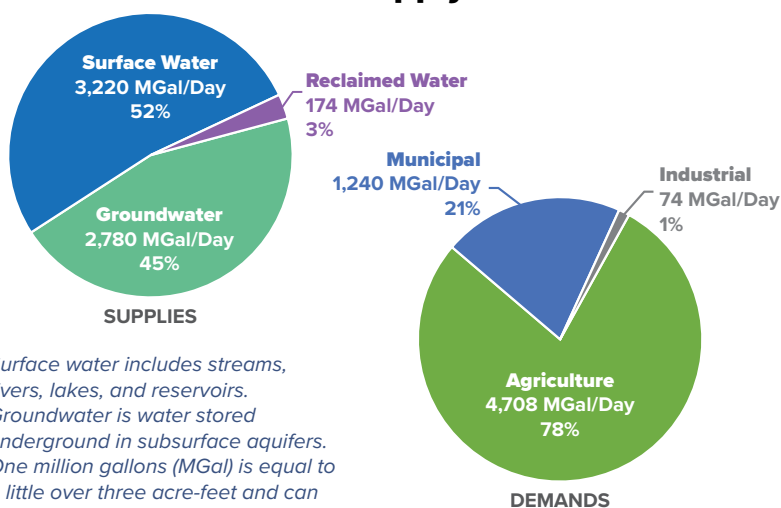
Arizona's future depends on sustainable water supplies, which in turn depend on vigilant and innovative management of those supplies. From low deserts to high mountains, counties and communities face different water challenges and take different approaches to addressing those challenges, while conforming with regional, state, and federal requirements. The Arizona Department of Environmental Quality (ADEQ) is responsible for water quality and tasked with enforcing federal environmental standards. The Arizona Department of Water Resources (ADWR) oversees the use of surface water and groundwater, which are legally distinct though physically interconnected. In general, ADWR regulates groundwater more strictly in Active Management Areas (AMAs) than in the rest of the state.

Statewide Context



County and AMA boundaries (WRRC 2023).

Arizona Water Supply and Demand

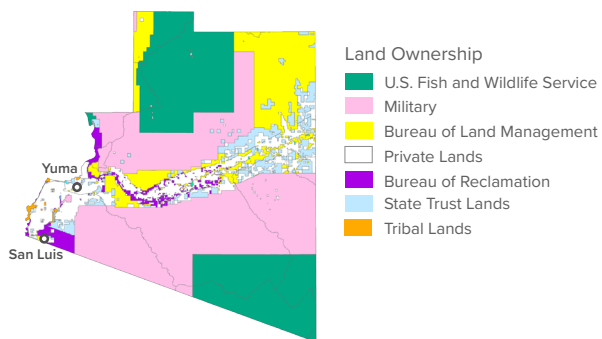


Surface water includes streams, rivers, lakes, and reservoirs. Groundwater is water stored underground in subsurface aquifers. One million gallons (MGal) is equal to a little over three acre-feet and can serve 13 Tucson households for a year (Tucson Water 2018, USGS 2015).

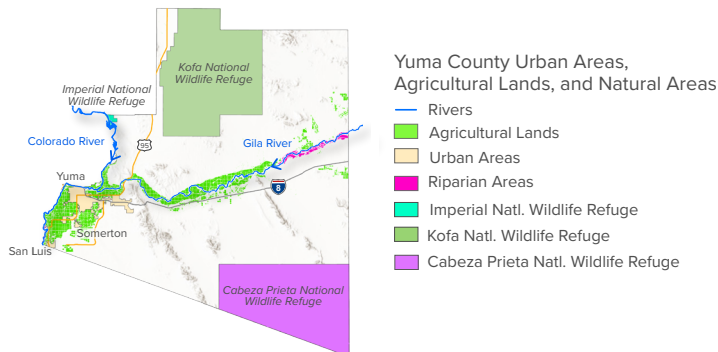
Water in Yuma County

Yuma County is one of the four original Arizona counties, designated in 1864. The county is characterized by scattered low mountains and wide valleys of the Sonoran Desert, receiving an average of three inches of annual rainfall. However, proximity to the historical floodplains of the Lower Colorado and Lower Gila Rivers has allowed a prominent agricultural industry to thrive in some of the most productive soils found in Arizona.

Yuma County is the fifth most populous county in the state with more than 90% of the population living in urban areas and served by water utilities. Land and water management in the county are defined by land ownership (88.2% federal, 11% private, 5% state, and 0.2% Tribal). Tribal lands of the Fort-Yuma-Quechan and Cocopah Tribes are found within the county's boundaries and maintain autonomous systems of natural resources management and independent entitlements to Colorado River water.



Land ownership in Yuma County (Arizona State Land Department 2020).



Yuma County urban areas, agriculture lands, rivers, and natural areas (US Census Bureau 2020, USDA 2011, NHD 2022, FWS 2022).

Frequently Asked Questions

Where Does Yuma County's Water Come From?

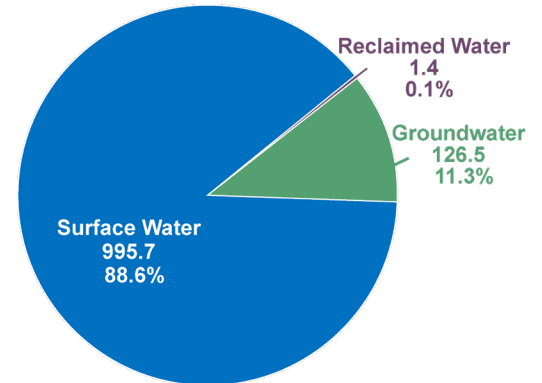
The primary source of water in Yuma County is surface water (89%) with groundwater making up the remaining supply (11%).

Groundwater

Groundwater is found under the earth's surface in aquifers, the pore spaces and fractures in rock and sediment.

Groundwater use is regulated by ADWR within **Active Management Areas (AMAs)**. Yuma County is not located within an AMA, but certain regulations of the **1980 Arizona Groundwater Management Act (GMA)** still apply.

- ADWR administers the **Adequate Water Supply Program**. Obtaining an Adequate Water Supply determination requires demonstration that water supply meets water quality standards and is physically, continuously, and legally available for 100 years. The determination of adequacy or inadequacy must be provided to buyers before subdivided lots can be sold to the public.
- In 2008, Yuma County elected to become a mandatory adequacy jurisdiction, which requires developers to prove a 100-year water supply. If ADWR determines that the available water supply is not adequate, the county can deny approval of a new subdivision.



Sources (Million Gallons/Day) for Yuma County's water (USGS 2015).

Surface Water

Nearly all surface water in Yuma County comes from the Colorado River, which is the only source of water for communities located adjacent to the river.

- Most Colorado River water used in Yuma County is diverted at Imperial Dam into a network of approximately 226 miles of canals. These canals provide water for irrigation along the Lower Colorado and Lower Gila Rivers, as well as to public and private water providers for municipal and industrial use.
- Colorado River water is managed by the Bureau of Reclamation (Reclamation) and ADWR through Colorado River entitlements. Each entitlement holder maintains their own conservation plans, ordinances, and resolutions that governs their Colorado River water use.

How Is Water Used in Yuma County?

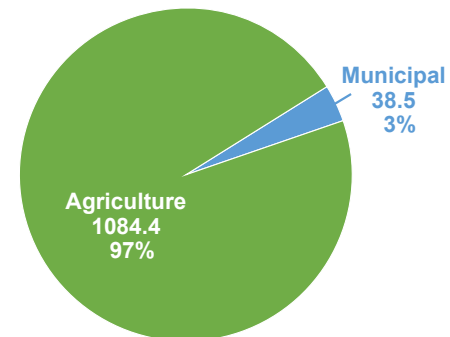
Most of the water in Yuma County (97%) is used for agriculture, with municipal use (domestic and commercial use) accounting for the remaining water demand (3%).

Agriculture. Agricultural production is the largest, most economically significant industry in Yuma County. About 90% of water used for agriculture comes from surface water, irrigating croplands concentrated along the fertile floodplains of the Gila and Colorado Rivers. Vegetables, melons, durum wheat, cotton, and hay (alfalfa, Sudan grass, teff grass) are the dominant crops within the county.

Yuma County is one of the nation's largest producers of winter vegetables, particularly leafy greens. During peak weeks in December, leafy greens from Yuma can represent between 80% to 95% of US weekly shipments.

Tourism. Proximity to the Colorado River is an important factor that makes tourism an important industry in Yuma County. It is estimated that \$372 million is generated annually from recreation on or along rivers, lakes, and streams within the county.

Military. The US Army Yuma Proving Ground is located in La Paz and Yuma Counties. Their Colorado River entitlement provides water for military operations at the test center as well as the nearly 3,000 individuals employed or in-residence as military services members and families, civilians, or contractors.



Water use (Million Gallons/Day) in Yuma County (USGS 2015).

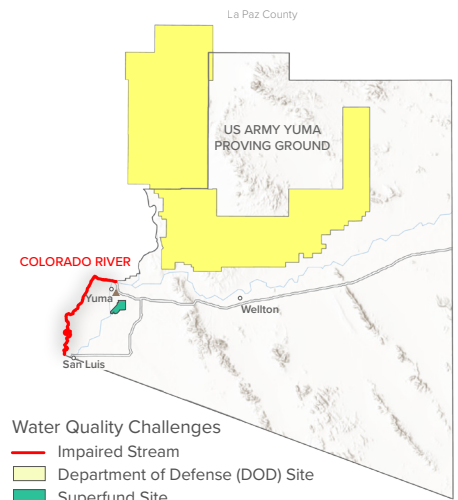
What Water Challenges Does Yuma County Face?

Water Quality Challenges

Superfund Site. The Marine Corps Air Station is a Superfund site or a federally designated area contaminated by toxic chemicals that can be hazardous to the public and/or environmental health. Site cleanup is governed by the US EPA and funded by federal and local entities.

Groundwater Contamination. Several sites in Yuma County present groundwater contamination concerns including a Water Quality Assurance Revolving Fund (WQARF) registry site near Yuma and a Department of Defense (DOD) site. Several remediation strategies have been initiated at these sites and are overseen by ADEQ. In addition, naturally occurring high levels of fluoride and/or arsenic are ongoing concerns for groundwater quality.

Surface Water Impairment. A section of the Colorado River is considered impaired by ADEQ for an exceedance in selenium. Additionally, salinity management is an important issue for Colorado River water users as concentrations are found to be 16x higher in Yuma County than at the river's source. These salts are dissolved from natural and industry-related sources along the river's course and create environmental and economic concerns – especially for agriculture.



Water Quality Challenges
— Impaired Stream
■ Department of Defense (DOD) Site
■ Superfund Site
▲ Water Quality Assurance Revolving Fund (WQARF) Site

Impaired waterbodies, WQARF, DOD, and Superfund sites (ADEQ 2022).

Water Quantity Challenges

Colorado River Shortages. Due to improved snow pack during the winter of 2022-2023, Reclamation has declared a Tier 1 water shortage reduction for the Colorado River system for 2024; this will slightly increase Arizona's available water supply compared to the current (2023) Tier 2a shortage declaration.

- The 2019 **Drought Contingency Plan (DCP)** aims to mitigate impacts to use reductions of Colorado River water with conservation measures timed to declining water levels in Lake Mead, but future tiered shortage declarations could have critical implications for agriculture in Yuma County.

Colorado River Aquifer. The accounting surface boundaries of the Colorado River were developed by Reclamation and the US Geological Survey (USGS) to protect the water rights of entitlement holders. The boundaries define a Colorado River Aquifer inside which, any water pumped by wells is regulated. These boundaries present a challenge to develop strategies to reclaim and store unused Colorado River water in Yuma County.

How Is Yuma County Moving Toward Sustainable Water Management?

Habitat Restoration. The Lower Colorado River Multi-Species Conservation Program is a cooperative effort among federal, public, private, and Tribal partners that works to balance the use of the Colorado River water resources with the conservation of native species and their habitats. In Yuma County, the Yuma East Wetlands and Imperial Ponds Conservation areas are part of this program which features over 4,400 acres of native habitat.

Irrigation Efficiency. Water used for irrigation in Yuma County has decreased 15% since 1990 based on a reduction in irrigable acres, expanded use of multi-crop production systems that require less water, and significant improvements in crop and irrigation management and infrastructure. The number of acres planted to vegetables has increased nearly 6x over the past 40 years while acreage committed to full season crops (citrus, cotton, sorghum, and alfalfa) has declined 43%.

Colorado River Water Quality. The Yuma Desalting Plant was constructed in 1974 to treat saline agricultural return flows to the Colorado River. The plant has been maintained, but largely not operated. However, increases in water demand on the Lower Colorado River coupled with the effects of a prolonged drought over the entire Colorado River Basin have prompted continued interest in plant operation.

In Yuma County, 157,000 acres of agricultural lands produce nearly 240,000 acres of crops annually. Nearly 70% of the irrigable acres within the county utilize a multi-crop production system.

What Does Yuma County's Future Water Situation Look Like?

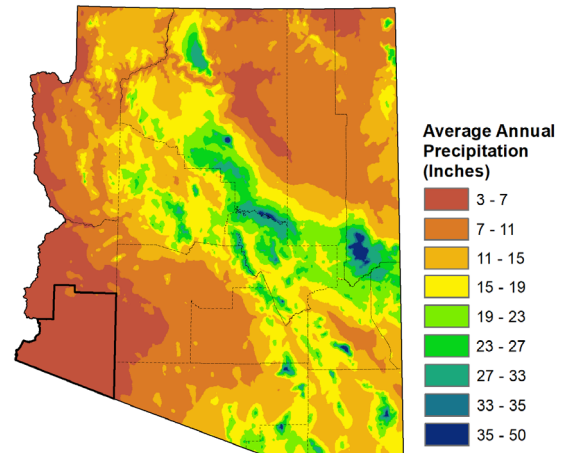
The state of Arizona has been experiencing drought conditions for over 20 years. A hotter and drier future means increased pressure on competing demands for county water resources. Drought and climate change pose significant risks to Yuma County, including:

- Unpredictable weather patterns, more severe storms and flooding, as well as increasing temperatures create challenges for communities and agriculture.
- Little forage available for local wildlife, stressed vegetation, increased fire risk, and nearly dry stock ponds and creeks.

Despite uncertainty about future rainfall, runoff and snow pack further upstream at the headwaters of the Colorado River, local drought plans can define responses to these changing conditions.

- While drought and comprehensive planning throughout the county is critical, proximity to the highly regulated Colorado River greatly impairs the county's ability to plan for its long-term sustainability and growth based on vital water resources.

Yuma County water users maintain mostly higher priority entitlements to Colorado River water and have not been impacted by current federal shortage declarations. However, future reductions and worsening drought will affect the area's crop production. It is likely that some agricultural land will cease production through following either temporarily or permanently.



Mean Precipitation 1981-2010 (PRISM Climate Group 2016).

Additional Resources

The WRRC compiles and periodically updates a list of additional resources related to water in Arizona. These resources range from statewide information to information available from local watershed groups and non-profits. Visit the [WRRC website](#) to see a complete list. The resources used for this factsheet are listed below.

WRRC Water Map

A reliable and concise visual representation of Arizona's water resources. This map includes information on land ownership, water use by groundwater basin, annual precipitation, subsidence and groundwater storage, annual water use by region, supply and demand, Colorado River apportionment, and more. [Map Info](#)

Statewide Water Resources

- **ADEQ Emerging Contaminants Report:** An assessment of the emerging contaminants in Arizona's water supplies.
- **ADEQ Impaired Water Information:** Maps and information about the impaired surface waters in the state.
- **ADEQ Superfund Sites:** An overview and descriptions of Superfund sites in Arizona.
- **ADEQ WQARF Registry:** A list and descriptions of WQARF sites across the state.
- **Cooperative Extension Water Wise:** Information on water saving techniques for Arizona relating to irrigation, gray water, and rainwater harvesting.
- **Desert Water Harvesting Initiative:** Resources for local water harvesting and Green Infrastructure.
- **PRISM database:** Data on historic and current climate patterns, used for the precipitation map of Arizona.
- **Tribal Water Rights:** Information on Tribal water usage in the Colorado River basin and the barriers to that usage.

- **USGS Ground Water Atlas of the United States:** Information about aquifers throughout the US.

Regional Management and Planning

- **Accounting Surface Along the Lower Colorado River:** USGS report that defines the Accounting Surface boundaries and Colorado River Aquifer.
- **Audubon Arizona:** Economic Impact of Arizona's rivers, lakes, and streams on statewide and local economies.
- **Colorado River Management:** Information on regulations and allocations of Colorado River Water from ADWR.
- **Drought Contingency Plan (DCP):** Collaborative agreement designed to protect the Colorado River system.

County Specific Water Resources

- **A Case Study in Efficiency – Agriculture and Water Use in the Yuma, Arizona Area:** The history and current agricultural production and water use in Yuma County.
- **Arizona County Agricultural Economy Profiles:** Agriculture, water use, and regional economic data by county.
- **City of Yuma Drought Preparedness and Response Plan:** Outline of responses to declared surface water shortages.
- **Yuma County 2030 Comprehensive Plan:** The county development guide which includes information on agriculture, water policy and management.