



Arizona State Senate Issue Brief

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Note to Reader:

The Senate Research Staff provides nonpartisan, objective legislative research, policy analysis and related assistance to the members of the Arizona State Senate. The *Research Briefs* series is intended to introduce a reader to various legislatively related issues and provide useful resources to assist the reader in learning more on a given topic. Because of frequent legislative and executive activity, topics may undergo frequent changes. Nothing in the Brief should be used to draw conclusions on the legality of an issue.

ARIZONA'S WATER SUPPLIES

BACKGROUND

In 1980, the Arizona Department of Water Resources (ADWR) was established to ensure dependable long-term water supplies for Arizona's growing communities. ADWR administers state water laws, except those related to water quality which are administered by the Arizona Department of Environmental Quality. Arizona's water supplies consist of: 1) surface water, including Colorado River water and in-state rivers; 2) groundwater; and 3) reclaimed water (also known as effluent).

Arizona's Annual Water Supply Budget			
Water Source	In Million Acre-Feet (maf)		% of Total
Surface Water			
Colorado River		2.8	38%
CAP	1.6		
On-river	1.2		
In-state rivers		1.4	18%
Salt-Verde	.9		
Gila & others	.5		
Groundwater		2.7	41%
Reclaimed Water		.2	3%
TOTAL	7.1 maf		

SURFACE WATER

Surface water rights are governed by the doctrine of prior appropriation – first in time, first in right – meaning that a person who first puts the waters to a beneficial use acquires a right that is better than later appropriators of the water (A.R.S. § 45-151). Prior to June 12, 1919, a person could acquire a surface water right by applying the water to a beneficial use and posting a notice of the appropriation at the point of diversion. On June 12, 1919, the Arizona Surface Water Code (also known as the Public Water Code) was enacted. The Arizona Surface Water Code established procedures for developing a right to use appropriable water. Today, any person, including the United States, the state or a municipality intending to

acquire the right to the beneficial use of water must apply for and obtain a permit from the ADWR Director. Beneficial uses include domestic, municipal, irrigation, stock watering, water power, recreation, wildlife including fish, nonrecoverable water storage and mining uses (A.R.S. § 45-151).

Storage reservoirs and conveyance systems have been constructed throughout the state to store surface water that also provides fishing, camping, boating and swimming activities year-round. The Salt River Project (SRP) is the oldest multipurpose federal reclamation project in the United States, serving Arizona since 1903. SRP, in addition to being a public power utility, delivers approximately 800,000 acre-feet of water annually to a 375 square-mile service area and manages a 13,000 square-mile watershed that includes an extensive system of reservoirs, wells, canals and irrigation laterals. Water in SRP's system starts as snow in the forests of northern Arizona and through a network of 131 miles of canals, is delivered to nine metropolitan Phoenix area cities and irrigation customers.

The treatment of water to ensure it meets all federal and state water quality standards is done by each city before it is delivered via a series of underground pipes to homeowners.

COLORADO RIVER WATER

A separate category of surface water is supplied through the Colorado River; the waters of which have been divided among the Colorado River Basin States (Arizona, California, Nevada, New Mexico, Utah, Colorado and Wyoming) and Mexico. The Colorado River is managed and operated under numerous compacts, federal laws, court decisions and decrees, contracts and regulatory guidelines, collectively known as the Law of the River.

The Colorado River Basin Project Act of 1968 authorized the construction of the Central Arizona Project (CAP). Arizona's annual apportionment of Colorado River water is 2.8

maf. On-River users in Arizona (Mohave, La Paz and Yuma counties) rely on Colorado River as their principal water supply and collectively are entitled to annual allotment of 1.2 maf. This entitlement includes water for four Arizona tribes and Yuma irrigation districts. The remaining 1.6 maf is delivered to CAP's service area of Maricopa, Pinal and Pima counties via a 336-mile long system of aqueducts, tunnels, pumping plants and pipelines.

The Central Arizona Water Conservation District (CAWCD), established in 1971, operates the CAP and is governed by a 15-member Board of Directors elected from its three-county (Maricopa, Pinal and Pima) service area. The CAWCD is a special taxing district formed for the purposes of: 1) contracting with the U.S. for the delivery of CAP water; 2) repayment of CAP costs and operation; and 3) maintenance of the CAP aqueduct. The CAWCD is authorized to levy an ad valorem tax against the assessed valuation of all taxable property within its service area and may issue revenue bonds to meet its obligations (A.R.S. § 48-3702 et al).

The Colorado River system has experienced extensive drought conditions for nearly 15 years. Water levels in Lake Mead and Lake Powell determine how much Colorado River water Arizona, along with other water users in the Lower Colorado River Basin (Arizona, California, Nevada and Mexico) receives on an annual basis. Shortage means a reduction in the annual allocation of Colorado River water available to Arizona, Nevada and Mexico and is determined primarily by the volume of water in Lake Mead. Each month the U.S. Bureau of Reclamation (which manages the Colorado River system) forecasts the water elevation for the following two years (24-month study). If the elevation predicted by the August 24-month study for January 1 of the following year falls below 1,075 feet, a Tier 1 shortage would be declared for the following year. Additional shortages are declared at 1,050 feet (Tier 2) and 1,025 feet (Tier 3).

Lower Basin Shortage Reductions (in af)			
State	Tier 1	Tier 2	Tier 3
Arizona	320,000	400,000	480,000
California	0	0	0
Nevada	13,000	17,000	20,000
Mexico	50,000	70,000	125,000

Because CAP holds a junior priority water entitlement among the Lower Basin States, CAP would be subject to reductions in Colorado River water.

Near-term shortage is not expected to impact water supplies for Arizona's cities, towns, industries, mines or tribes using CAP water. It would, however, eliminate CAP water supplies to the Arizona Water Banking Authority, reduce the amount identified for groundwater replenishment impacting agricultural users in central Arizona and may cause an increase in CAP water rates.

GROUNDWATER

Prior to 1980, groundwater law had developed primarily through Arizona Supreme Court decisions and was governed by the rule of reasonable use. Under this rule, property owners had the right to capture and use the groundwater beneath their land for reasonable and beneficial use on that land. The Groundwater Management Act of 1980 (Groundwater Code) quantifies and regulates rights to withdraw groundwater in geographic areas where overdraft, or mining, of groundwater is most severe. In addition to depletion of supplies, as the water table declines, pores in the alluvium once held open by water pressure are no longer supported and collapse. Collapse and subsequent lowering in elevation of the land surface is known as subsidence. As reported by ADWR, areas in Maricopa and Pinal counties have subsided more than 18 feet since the early 1900's.

Initially, the Groundwater Code created four Active Management Areas (AMAs): Phoenix, Pinal, Prescott and Tucson. In 1994, the

Legislature established a fifth AMA, the Santa Cruz, and modified the boundary of the Tucson AMA to exclude a portion that became part of the Santa Cruz AMA.

The Groundwater Code set management goals for each of the AMAs (A.R.S. § 45-562). For the Phoenix, Prescott, Santa Cruz and Tucson AMAs, the management goal is to achieve safe-yield by the year 2025. Safe-yield is a long-term balance between the annual amount of groundwater withdrawn in an AMA and the annual amount of natural and artificial recharge in the AMA (A.R.S. § 45-561). In addition to maintaining its safe-yield status, the Santa Cruz AMA goal is to prevent local water tables from experiencing long-term decline. In the Pinal AMA, where the economy is primarily agriculture, the management goal is to preserve that economy for as long as feasible, consistent with the need to preserve groundwater for future non-irrigation uses.

While AMAs have the highest degree of groundwater restrictions, Irrigation Non-Expansion Areas (INAs) allow only acres of land that were irrigated at any time during the five years preceding the date of notice of the initiation of designation procedures to be irrigated (A.R.S. § 45-437). Two INAs were created by the Groundwater Code: Joseph City and Douglas. In 1982, ADWR established the Harquahala INA.

Subsequent AMAs may be established by the ADWR Director if, after notice and hearing, it is determined that active management practices are necessary to: 1) preserve the existing supply of groundwater for future needs; 2) land subsidence or fissuring is endangering property or potential groundwater storage capacity; or 3) use of groundwater is resulting in actual or threatened water quality degradation (A.R.S. § 45-412). The ADWR Director may designate an area not included within an AMA as a subsequent INA if there is insufficient groundwater to provide a reasonably safe supply for irrigation of cultivated lands in an area at the current rate of withdrawal and the establishment of an AMA is not necessary

(A.R.S. § 45-432). Subsequent AMAs or INAs may also be established by petition and election by local residents (A.R.S. §§ 45-415 and 45-433).

In AMAs, developers are required to demonstrate the availability of a long-term water supply for new residential growth. Thus, any person who proposes to offer subdivided lands for sale or lease must be served by a municipal provider designated by ADWR as having an Assured Water Supply (AWS) or apply for and obtain a certificate of AWS from ADWR before the land may be marketed to the public (A.R.S. § 45-576). An AWS means that: 1) water of sufficient quality and quantity is available to satisfy the needs of the proposed use for at least 100 years; 2) the proposed use is consistent with the management plan and achievement of the AMA management goal; and 3) the water provider has the financial capability to construct water delivery, storage and treatment systems (A.R.S. § 45-576).

AWS rules also prohibit new growth from relying solely on mined groundwater and instead requires reliance on renewable water sources. Renewable water sources include, but are not limited to, effluent and surface water supplies.

A landowner or municipal provider in the Phoenix, Pinal or Tucson AMA that has limited or no access to renewable supplies, but has physically available groundwater, may obtain an AWS designation by enrolling its subdivision or service area as a member of the Central Arizona Groundwater Replenishment District (CAGR). Member lands pay replenishment assessments and fees and in return CAGR secures renewable water supplies to recharge any groundwater pumped that exceeds the pumping limitations imposed by the AWS rules. Homeowners on member lands also help pay for replenishment services through assessments on their property taxes. CAGR is not a separate entity, but is a responsibility of the CAWCD.

Outside an AMA, the AWS rules do not apply. However, subdivision developers must

obtain a determination from ADWR regarding the availability of an adequate water supply of at least 100 years to meet the development water demands before a plat can be approved by a city, town or county and before the Arizona Department of Real Estate will authorize the sale of lots (A.R.S. § 45-108). Developers are required to disclose any inadequacy of water supply potential to initial buyers, but are not precluded from selling lots unless the subdivision is located in a county or municipality that has adopted an ordinance requiring an adequate water supply. To date, Cochise and Yuma Counties and the Towns of Clarkdale and Patagonia have passed such ordinances.

EFFLUENT

Effluent is wastewater from homes and business that is collected in a sanitary sewer system and delivered to a wastewater treatment plant. The wastewater is then highly treated to remove solids and impurities. This reclaimed water may be used for several purposes including agriculture, golf courses, parks, industrial cooling, maintenance of wildlife areas or to recharge aquifers. The use of reclaimed water is regulated by ADEQ. Currently, direct potable reuse of reclaimed water is not permitted under ADEQ rules.

ADDITIONAL RESOURCES

- Arizona Department of Water Resources
www.azwater.gov
- Arizona Department of Real Estate
www.re.state.az.us
- Central Arizona Project www.cap-az.com
- Salt River Project www.srpnet.com
- Arizona Revised Statutes, Title 45
- ADWR FY 2016 Annual Report [http://www.azwater.gov/AzDWR/documents/ADWRDirector/Annual_Report_2016\(Final\).pdf](http://www.azwater.gov/AzDWR/documents/ADWRDirector/Annual_Report_2016(Final).pdf)