

## **[SECTION 4: APPENDICES]**

## APPENDIX I - Timeline of Arizona Water Management History

### 1863 **Arizona Territory is established**

Arizona is declared a U.S. territory by President Lincoln on February 24, making it separate from the New Mexico Territory.

### 1864 **Howell Code**

The first Arizona Territorial Legislature adopts the Howell Code, which establishes the doctrine of prior appropriation for surface water – “First in Time, First in Right.”

### 1877 **Desert Land Act**

Passed by Congress on March 3 to encourage and promote the economic development of the Western states by allowing individuals to apply for a desert-land entry to reclaim, irrigate and cultivate arid and semi-arid public lands. Lands granted through the Act do not convey any water rights, as the Act provides that water rights were to be acquired through state law.

### 1888 **Clough v. Wing**

The Arizona Territorial Supreme Court issues a decision recognizing the doctrine of prior appropriation as the means of allocating surface waters of the Territory, and stating that beneficial use is the limit of a water right.

### 1902 **National Reclamation Act**

This Act, signed by President Theodore Roosevelt, recognizes that a key component to Western growth and development is constructing a system of irrigation works for the storage, diversion and development of water. The Act provides funding for irrigation projects in the Western states and results in the creation of the U.S. Reclamation Service (later the Bureau of Reclamation). The Act provides that “the right of the use of water acquired under the provision of this Act shall be appurtenant to the land irrigated, and beneficial use shall be the basis, the measure, and the limit of the right.”

### 1903 **Salt River Valley Water User’s Association in Incorporated**

Salt River Project, based in Phoenix, was established as the nation’s first multipurpose reclamation project authorized under the National Reclamation Act. Today, SRP is the nation’s third-largest public power utility and one of Arizona’s largest water suppliers.

### 1904 **Howard v. Perrin**

The Arizona Territorial Supreme Court ruling in this case (upheld in 1906 by the U.S. Supreme Court) recognizes a definite distinction, in character and ownership, between appropriable surface water and percolating groundwater. The court holds that percolating groundwater is the property of the overlying landowner and not subject to appropriation as surface water. The court further holds that subterranean streams flowing in natural channels between well-defined banks are subject to appropriation.

### 1906 **Gould v. Maricopa Canal Company**

The Arizona Territorial Supreme Court holds that the vested right to the use of water for irrigation is not with the canal company but with the users who put the water to beneficial use on land they own or possess. The court further holds that ownership of the means of diversion is not essential to perfect the right of appropriation.

**1908** *Winters v. United States*

The United States Supreme Court holds that an Indian tribe's water rights are established when the reservation is created, regardless of whether the tribe actually uses water on the reservation at that time. The Court holds that Congress, by creating the reservation, impliedly reserved all the waters of the river necessary for the purposes for which the reservation was created.

**1910** **Arizona Constitution is adopted**

The Arizona Constitution is adopted by delegates to the Constitutional Convention. It becomes effective in 1912 following ratification by voters of the State and approval by Congress and President Taft. Article XVII, § 1 states: "The common law doctrine of riparian water rights shall not obtain or be of any force or effect in the State." Article XVII, § 2 states: "All existing rights to the use of any of the waters in the State for all useful or beneficial purposes are hereby recognized and confirmed."

**1911** **Theodore Roosevelt Dam is completed**

This structure is the first multi-purpose project built by the Bureau of Reclamation. The dam is located 76 miles northeast of Phoenix at the confluence of the Salt River and Tonto Creek where it is operated and maintained by the Salt River Project.

**1912** **Arizona Statehood**

Arizona is accepted for statehood by President Taft and becomes the 48<sup>th</sup> state on February 14, 1912.

**1918** *McKenzie v. Moore*

The Arizona Supreme Court holds that water from a spring that is not the source of a watercourse is not appropriable, but instead belongs to the owner of the land on which the spring is located, who may use its entire flow.

**1919** **Public Water Code is adopted**

Enacted by the legislature on June 12, the Public Water Code establishes administrative procedures for obtaining a right to use appropriable water, including a permitting system. These procedures replace the prior practice of either merely putting the water to beneficial use or posting a notice at the point of diversion, recording a copy of the notice with the County Recorder, and then putting the water to beneficial use.

**1922** **Colorado River Compact**

The Seven Basin States negotiate an interstate compact dividing the Colorado River Basin into an Upper and Lower River Basin and apportioning 7.5 MAF of Colorado River water per year to each basin. Arizona refuses to ratify the Compact (but signs it in 1944) because of concerns over how its tributary waters from the Salt and Gila Rivers will be counted in the apportionment. Article VII, inserted at the insistence of Herbert Hoover, the Colorado River Commission's federal chairman, states "Nothing in this compact shall be construed as affecting the obligations of the United States of America to Indian Tribes."

**1926** *Pima Farms Company v. Proctor*

The Arizona Supreme Court holds that a junior appropriator of water from an underground stream flowing within defined channels may be enjoined from lowering the water levels in the senior appropriator's wells because under the doctrine of prior appropriation, a junior appropriator may not render ineffective the prior appropriator's means of diversion.

**1928 Boulder Canyon Project Act**

Passed by Congress on December 21, 1928, this Act authorizes construction of the Hoover Dam on the condition that the Colorado River Compact is ratified. The Act provides a mechanism for approval of the Colorado River Compact without Arizona's approval and authorized the apportionment of the Lower Basin's 7.5 million acre-feet (MAF) among the states of California (4.4 MAF), Arizona (2.8 MAF) and Nevada (0.3 MAF). The Act also designates the Secretary of the Interior as the sole contracting authority for Colorado River water use in the Lower Basin.

**1931 Maricopa Co. Municipal Water Conservation District v. Southwest Cotton Co.**

The Arizona Supreme Court holds that water seeping through a streambed or from lands under or immediately adjacent to a stream (referred to as "subflow") is part of the surface stream and is therefore appropriable. The test of whether subsurface water is appropriable is whether drawing off of the subsurface water tends to diminish directly and appreciably the flow of the surface stream ("direct and appreciable test.")

**1935 Completion of Hoover Dam**

On September 30, 1935, President Franklin D. Roosevelt dedicates Hoover Dam on the Colorado River. The dam stores water for use by the Lower Division states, controls flooding and generates hydroelectricity. The reservoir created by the dam is Lake Mead.

**1938 First Groundwater Study Group**

Governor Stanford appoints a group to study groundwater in response to growing concerns over increased groundwater pumping. The efforts of this group lead to the legislature appropriating monies to the U.S. Geological Survey to study and report on groundwater conditions in the state.

**1944 Mexican Water Treaty is signed**

The United States and Mexico sign a treaty providing for an annual allocation of 1.5 MAF of Colorado River water to Mexico. The Treaty further provides for an increase in that volume, up to a total of 1.7 MAF, if a surplus exists, and for a reduction in that volume "in the event of extraordinary drought or serious accident to the irrigation system in the United States ...."

**Arizona approves the Colorado River Compact**

Governor Osborn announces a policy shift in Arizona's position on matters relating to the Colorado River. As a result, Arizona approves the Colorado River Compact in hopes of getting approval for a reclamation project to deliver Colorado River water to central and southern Arizona (Central Arizona Project) and because of concerns over the recently-signed Mexican Water Treaty.

**Arizona Colorado River Contract**

Arizona contracts with the secretary of the Interior for delivery of 2.8 MAF of Colorado River water annually.

**1945 Arizona's first Groundwater Code is adopted**

Holding Arizona to its claim that construction of the Central Arizona Project would reduce groundwater use instead of allowing for more groundwater use by agricultural users, the Bureau of Reclamation warns that the Central Arizona Project will not be approved without restrictions on groundwater use. In response, the legislature enacts a Groundwater Code, but the Code only requires the registration of wells throughout the State.

**1948 Critical Groundwater Code is adopted**

Again, the federal government warns that the funding for the CAP will not be approved without a more meaningful Groundwater Code. The legislature responds by enacting the 1948 Code, which prohibits the drilling of new irrigation wells in ten designated Critical Groundwater Areas. However, the Code does nothing to regulate groundwater withdrawals from existing irrigation wells in those areas, thereby allowing groundwater pumping to continue at historic levels.

#### **Upper Colorado River Basin Compact**

The Upper Colorado River Basin States enter into an interstate compact apportioning the waters of the Upper Basin of the Colorado River between Arizona, Colorado, New Mexico, Utah and Wyoming. Arizona is included because Chinle Wash drains into the River above Lee Ferry. Arizona is apportioned 50,000 acre-feet per year of Upper Basin Colorado River water.

#### **Arizona Interstate Stream Commission**

The legislature establishes the Arizona Interstate Stream Commission to defend Arizona's rights to Colorado River water and to advance the authorization and construction of the Central Arizona Project.

#### **1951 Arizona's Second Groundwater Study Commission is formed**

In response to criticism that the 1948 Groundwater Code allows groundwater pumping to continue at historic levels within Critical Groundwater Areas, the second Groundwater Study Commission is formed to draft a new groundwater bill. The legislature fails to pass any of the Commission's recommendations and the Commission is ultimately abolished.

#### **1952 Bristor v. Cheatham I**

The Arizona Supreme Court holds that percolating groundwater is not owned by the owner of the overlying land but instead is subject to prior appropriation. This ruling reverses nearly 50 years of common law that had stated that percolating groundwater was not subject to prior appropriation.

#### **1953 Bristor v. Cheatham II**

The Arizona Supreme Court reverses its decision in *Bristor v. Cheatham I* (that groundwater is subject to the doctrine of prior appropriation) and instead adopts the American rule of reasonable use pertaining to groundwater. Under this rule, a landowner may withdraw groundwater for a reasonable and beneficial use on the land from which it is taken without liability for damages to surrounding landowners, but the withdrawal of groundwater for use away from the overlying land is subject to payment of damages to injured landowners.

#### **1955 Southwest Engineering Co. v. Ernst**

The Arizona Supreme Court upholds the provisions in the 1948 Groundwater Code restricting the drilling of new irrigation wells within Critical Groundwater Areas. The court rules that certain areas of the state may be managed differently, and that the additional restrictions placed on agricultural groundwater users by the 1948 Code are not in and of themselves unconstitutional.

#### **1963 Arizona v. California**

The United States Supreme Court upholds Congress' apportionment of the Lower Basin's share of mainstream waters of the Colorado River in the Boulder Canyon Project Act of 1928, with California receiving 4.4 MAF, Arizona 2.8 MAF and Nevada 0.3 MAF. In a major victory for Arizona, the Court holds that the waters apportioned to each state by the Act include only waters of the mainstream of the Colorado River, leaving to each state its own tributaries. The Court also holds that the Act gives the Secretary of the Interior broad discretion to determine how much water each state should receive during times of shortage, with some limitations. Finally, the Court holds that several Indian reservations near the Colorado River have reserved rights to water from the river in an amount sufficient to allow the irrigation

of all practicably irrigable acreage on the reservations and that other federal establishments, such as National Recreation Areas and National Forests, also have federal reserved water rights.

**1966 Glen Canyon Dam is completed**

Construction of Glen Canyon Dam on the Colorado River north of Page, Arizona is completed. The purpose of the dam is to regulate the flow of Colorado River water from the Upper Basin to the Lower Basin and to produce hydroelectricity. The reservoir created by the dam is Lake Powell.

**1968 Colorado River Basin Project Act**

Passed by Congress on September 30, 1968, this Act authorizes the construction of the Central Arizona Project. The Act contains a provision that safeguards California's 4.4 MAF entitlement, stating that in times of shortage this full amount will be delivered before any water is provided for the CAP. The stated legislative purpose of the Act calls for "furnishing irrigation water and municipal water supplies to the water-deficient areas of Arizona and western New Mexico ..."

**1969 Jarvis v. State Land Department I**

The Arizona Supreme Court affirms the superior court's issuance of an injunction prohibiting the City of Tucson from transporting groundwater to the City from wells in a Critical Groundwater Area outside the City. The court notes that the American rule of reasonable use provides that a person may not convey groundwater off the land if it will cause damage to other lands and further notes that this is a rule of property. The court finds that transporting groundwater away from a Critical Groundwater Area would necessarily cause damage to lands within the area and that an injunction is appropriate because damages would not adequately compensate the injured landowners.

**National Environmental Policy Act**

The purposes of this Act are to declare a national policy which will encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; to enrich the understanding of the ecological systems and natural resources important to the Nation; and to establish a Council on Environmental Quality.

**1970 Jarvis v. State Land Department II**

Relying on a surface water statute that gives preference to domestic and municipal uses over agricultural uses, the Arizona Supreme Court states that it will modify the injunction issued in *Jarvis v. State Land Department I* to allow the City of Tucson to acquire cultivated lands within the Critical Groundwater Area outside the City, retire the lands from irrigation and transport to the City for municipal use an amount of groundwater equal to the "annual historical maximum use" on the lands. The court later holds that "annual historical maximum use" means the *average* of the annual maximum amount of groundwater *consumptively* used on the land for irrigation purposes.

**1973 Construction of the CAP Canal begins**

Designed to bring about 1.5 MAF of Colorado River water per year to Pima, Pinal and Maricopa counties. The CAP canal now carries water from Lake Havasu near Parker to the southern boundary of the San Xavier Indian Reservation southwest of Tucson. It is a 336-mile long system of aqueducts, tunnels, pumping plants and pipelines and is the largest single source of renewable water supplies in central Arizona.

### **Endangered Species Act**

The purpose of the ESA is to protect and recover imperiled species and the ecosystems upon which they depend. It is administered by the U.S. Fish and Wildlife Service (FWS) and the Commerce Department's National Marine Fisheries Service (NMFS). The FWS has primary responsibility for terrestrial and freshwater organisms, while the responsibilities of NMFS are mainly marine wildlife such as whales and anadromous fish such as salmon. Under the ESA, species may be listed as either endangered or threatened. "Endangered" means a species is in danger of extinction throughout all or a significant portion of its range. "Threatened" means a species is likely to become endangered within the foreseeable future. All species of plants and animals, except pest insects, are eligible for listing as endangered or threatened. For the purposes of the ESA, Congress defined species to include subspecies, varieties, and, for vertebrates, distinct population segments.

### **1974 Water Rights Registration Act**

The Arizona legislature requires persons using, or claiming the right to use, surface water before June 12, 1919 to file a claim with the state. The Act provides that failure to file by a specified date will result in a waiver and relinquishment of any right, title or interest in the water. This Act triggers several water users throughout Arizona to request a determination of water rights in the Gila River and Little Colorado River watersheds. These actions eventually are combined into the Gila River Adjudication in the Maricopa County Superior Court and the Little Colorado River Adjudication in the Apache County Superior Court. The Act is later amended to require persons using, or claiming the right to use, surface water before March 7, 1995 to file a claim with the State.

### **1976 *Farmer's Investment Company (FICO) v. Bettwy***

The Arizona Supreme Court enjoins a mining company and the City of Tucson from transporting groundwater away from lands within a Critical Groundwater Area for use on lands outside the Critical Groundwater Area but within the same groundwater basin. The court holds that under the reasonable use doctrine, water may not be pumped from one parcel for use on another parcel if other lands will suffer injury or damage as a result, even though the two parcels overlie a common source of supply. The injunction is never enforced, however, as agricultural, mining and municipal interests soon begin negotiations on a legislative solution to groundwater transportation issues.

### **1977 Amendments to 1948 Groundwater Code**

As a result of negotiations between agricultural, mining and municipal interests following the *FICO* decision, the legislature amends the 1948 Groundwater Code to allow all existing groundwater transportations to continue and to allow new or increased transportations under certain conditions. In most cases, groundwater transportation is subject to payment of damages to injured landowners, and injury is conclusively presumed if groundwater is transported away from a Critical Groundwater Area. Cities, towns, private water companies and irrigation districts are allowed to transport groundwater within their service areas without payment of damages. A 25-member Groundwater Study Commission is established and charged with developing a new Groundwater Code to address groundwater transportation and reduce groundwater overdraft occurring in parts of the state.

### **Stockpond Water Rights Registration Act**

The legislature enacts legislation requiring an owner of a stockpond with a capacity of 15 acre-feet or less, that is used solely for livestock or wildlife, and that was constructed after June 12, 1919 and before August 27, 1977 to file a claim in order to obtain a valid water right with a priority date as of the date of construction. Failure to file a timely claim results in a priority date as of the date of the filing.

**Federal Budget Cuts**

President Carter announces that the Central Arizona Project is among several Federal projects whose funding will be cut, but later removes the CAP from this "hit list".

**1979 Groundwater Study Commission releases its Draft Report of Tentative Recommendations**

Secretary of the Interior Cecil Andrus warns that the Central Arizona Project will not be funded unless the State passes a Groundwater Code.

**1980 Groundwater Management Act**

Passed by the Arizona legislature on June 11, 1980 and signed into law by Governor Babbitt the next day, this Act implements the final recommendations of the Groundwater Study Commission. The Act **establishes the Arizona Department of Water Resources** to administer the provisions of the Act.

**Secretary of the Interior Cecil Andrus** informs Governor Babbitt that Arizona's enactment of the 1980 Groundwater Management Act will allow the Central Arizona Project to be funded.

**Town of Chino Valley v. City of Prescott**

The Arizona Supreme Court upholds the provisions of the 1980 Groundwater Management Act allowing groundwater to be transported within the sub-basin of an Active Management Area without payment of damages to injured landowners. The court rejects the plaintiffs' argument that landowners have a property right to the groundwater under their land that cannot be diminished without due process of law and without just compensation. The court states that "there is no right of ownership of groundwater in Arizona prior to its capture and withdrawal from the common supply and ... the right of the owner of the overlying land is simply to the usufruct of the water." The court further holds that the legislature may enact laws regulating groundwater use under its police powers.

**1982 Cherry v. Steiner**

The United States District Court holds that the provisions of the 1980 Groundwater Management Act restricting groundwater withdrawals from lands within Active Management Areas do not take property without due process of law. The court relies on the Arizona Supreme Court's holding in *Town of Chino Valley v. City of Prescott* that landowners have no property interest in the groundwater beneath their land prior to its capture and withdrawal. The court also upholds the legislature's designation of certain areas of the state as Active Management Areas.

**1984 First Management Plans are adopted**

The first of the five Management Plans called for by the Groundwater Management Act are adopted by ADWR for the Phoenix, Pinal, Prescott and Tucson AMAs.

**1985 The Central Arizona Project begins deliveries of water to central Arizona.**

**1986 The Lakes Bill**

The legislature enacts the Lakes Bill, which prohibits the construction of new bodies of water used primarily for landscape, scenic or recreational purposes and larger than 12,320 square feet within AMAs. There are several exceptions to the prohibition, including bodies of water filled entirely with effluent and bodies of water located in recreational facilities open to the public and owned or operated by a governmental entity.

**Underground Water Storage Act**

The legislature enacts laws allowing non-groundwater supplies to be stored in underground aquifers and recovered later through recovery wells. The water recovered may be used in the same manner in which it was permissible to use the water before it was stored.

**Arizona Department of Environmental Quality is created**

Established by the Arizona Environmental Quality Act in 1986 to administer all of Arizona's environmental protection programs, including a comprehensive groundwater protection program and the state's Water Quality Assurance Revolving Fund, to identify, assess and remediate contaminated sites with the potential to impact public health or groundwater. ADEQ supports a wide range of environmental programs that protect the quality of our air, water and land in Arizona. Also administers state environmental protection laws and a number of federally-delegated programs, such as the Clean Air Act program, the Safe Drinking Water Act program, and the National Pollutant Discharge Elimination System program.

**1987 SRPMIC Water Rights Settlement Act**

Settles the claims of the Salt River-Pima Maricopa Indian Community to groundwater, Salt River water and reclaimed water.

**1989 Second Management Plans are adopted**

ADWR adopts the second of the five Management Plans for the Phoenix, Pinal, Prescott and Tucson AMAs as called for by the Groundwater Management Act.

**Arizona Public Service Company v. Long**

The Arizona Supreme Court holds that effluent (treated municipal wastewater) is neither groundwater nor surface water and therefore is not subject to the groundwater or surface water laws. The court further holds that although effluent is neither groundwater nor surface water, it is water, and therefore must be put to a beneficial use. Additionally, the court notes that although the legislature has not regulated the use of effluent, it may do so in the future.

**1990 Indirect Groundwater Storage**

The legislature amends the Underground Water Storage laws to allow an entity to receive groundwater storage credits for delivering reclaimed water, CAP water or Colorado River water to a groundwater user who eliminates or reduces its use of groundwater.

**1991 Groundwater Transportation Act**

The legislature amends the groundwater transportation laws to prohibit the transportation of groundwater from areas outside of Active Management Areas to Active Management Areas, with several exceptions. The exceptions allow certain entities to transport groundwater from the McMullen Valley groundwater basin to the Phoenix AMA, from the Big Chino sub-basin of the Verde River groundwater basin to the Prescott AMA, and from the Butler Valley groundwater basin and the Harquahala INA to any initial AMA.

**1992 Water Exchange Legislation**

The Arizona legislature enacts legislation authorizing water exchanges. A person participating in a water exchange must have the right to use the water given in the exchange and may use the water received in the exchange only in the same manner in which the person has the right to use the water given in the exchange, but the person need not have a right to use the water received in the exchange. Water exchanges involving surface water, other than Colorado River water require a permit from ADWR. Most other water exchanges require the filing of a notice with the ADWR.

**1992 Grand Canyon Protection Act**

Passed by Congress, this Act requires the Secretary of Interior to operate Glen Canyon Dam in accordance with the additional criteria and operating plans *in such a manner as to protect, mitigate adverse impacts to, and improve the values for which Grand Canyon National Park and Glen Canyon National Recreation Area were established, including, but not limited to natural and cultural resources and visitor use*, subject to applicable provisions of the Law of the River.

**1993 Restrictions on transporting groundwater outside of Active Management Areas**

The legislature amends the groundwater transportation laws to prohibit most new transportations of groundwater between groundwater basins outside of Active Management Areas.

**Central Arizona Groundwater Replenishment District**

The legislature amends the laws governing the CAP to provide that the District shall serve as a groundwater replenishment entity for member lands and member service areas within the District (Maricopa, Pinal and Pima Counties). The CAGRDR assists its members in obtaining determinations of assured water supply by agreeing to replenish groundwater used by a member in excess of the amount determined by ADWR to be consistent with the AMA's management goal.

**Fort McDowell Indian Community Water Settlement**

Settled the claims of the Fort McDowell Indian Community's claims to water supplies in the Verde River and groundwater and effluent

**1994 Underground Water Storage, Savings and Replenishment Act**

The legislature repeals previous enactments and consolidates all underground water storage programs into a unified program.

**Water Protection Fund**

The legislature establishes the Water Protection Fund. The fund is administered by a commission which issues grants from the fund to water users for implementing projects to protect Arizona's rivers and streams, including the use of excess CAP water for riparian enhancement.

**1995 Assured and Adequate Water Supply Rules**

ADWR adopts rules establishing criteria for demonstrating an assured or adequate water supply become effective. The rules require that an applicant for a certificate or designation of assured water supply in an AMA demonstrate that the use will be served primarily with renewable water supplies.

**Yavapai-Prescott Indian Tribe Water Rights Settlement Agreement**

Settles claims of the Yavapai-Prescott Indian Tribe to groundwater and surface water from Granite Creek and reclaimed water and allows for the transfer of the Tribe's and the City of Prescott's CAP water to the City of Scottsdale.

**Santa Cruz Active Management Area is established**

The Santa Cruz AMA is established from a portion of the Tucson Active Management Area to address unique water management goals.

**1996 Arizona Water Banking Authority**

The AWBA is established as a mechanism for Arizona to fully utilize its CAP allotment. The AWBA may annually purchase all or part of the state's unused CAP allotment and store it underground for times of

shortage. The legislation also allows the AWBA to store Colorado River water on behalf of agencies in Nevada and California.

**1999 Third Management Plans are adopted**

ADWR adopts the third of the five Management Plans for the Phoenix, Pinal, Prescott, Santa Cruz and Tucson AMAs as called for by the Groundwater Management Act.

**Off stream Storage of Colorado River Water and Development and Release of Intentionally Created Unused Apportionment in the Lower Division States**

The Secretary of the Interior adopts regulations providing for, which enables interstate water banking in the Lower Colorado River Basin.

**Adjudication Court Decision: *In re the General Adjudication of all Rights to Use Water in the Gila River System and Source (Gila III)***

The Arizona Supreme Court holds that federal reserved water rights for federal reservations (Indian and non-Indian) include not only surface water but also groundwater to the extent that surface water supplies are inadequate to accomplish the purpose for which the reservation was created.

**San Carlos Apache Tribe Water Rights Settlement Agreement**

Settles the claims of the San Carlos Apache Tribe to the Salt River side of their reservation and includes groundwater, water from the Salt, Black, Gila and Sand Pedro Rivers, CAP water (that can be leased) and reclaimed water. The water right claims of the Tribe to the Gila River side of the reservation will be the subject of separate negotiations or litigation.

**2000 Governor's Water Management Commission**

Governor Jane Dee Hull announces the formation of the Governor's Water Management Commission.

**Adjudication Court Decision: *In re the General Adjudication of all Rights to Use Water in the Gila River System and Source (Gila IV)***

The Arizona Supreme Court affirms the trial court's determination that the subflow zone within the San Pedro River watershed is the saturated floodplain Holocene alluvium. There is a rebuttable presumption that wells located within the subflow zone and wells whose cones of depression extend into the subflow zone are pumping appropriable subflow, and such wells are therefore subject to the jurisdiction of the adjudication court. ADWR will determine the extent of the saturated floodplain Holocene alluvium and conduct cone of depression tests.

**2001 Colorado River Interim Surplus Guidelines**

The United States Bureau of Reclamation adopts guidelines defining the conditions for declaration and implementation of surplus conditions in the Lower Basin of the Colorado River.

**Agreement for Interstate Water Banking**

The AWBA, the Southern Nevada Water Authority and the Colorado River Commission of Nevada reach an agreement allowing the storage of Colorado River water in Arizona for future uses in Nevada.

**Adjudication Court Decision: *In re the General Adjudication of all Rights to Use Water in the Gila River System and Source (Gila V)***

The Arizona Supreme Court rejects the "practicably irrigable acreage" standard as the exclusive standard for quantifying federal reserved water rights for Indian reservations. Instead, the court holds that an

Indian reservation should be allocated the quantity of water necessary to achieve its purpose as a permanent homeland for the Indian tribe, which may include water for multiple present and future uses.

**2003 Governor's Drought Task Force**

Arizona adopts its first Operational Drought Preparedness Plan and comprehensive Statewide Water Conservation Plan. As a result of this effort legislation was adopted to require all Community Water Systems to annually report their water use and supply a Water Supply plan every five years to ADWR.

**Zuni Indian Tribe Water Rights Settlement Agreement**

Settles claims of the Zuni Tribe to surface water from the Little Colorado River and provides to the tribe additional groundwater and reclaimed water.

**2004 Arizona Water Settlement Act**

Through this Act, Congress approves an agreement between the United States and the State of Arizona for CAP repayment obligations. The Act also settles the water rights claims of the Gila River Indian Community and the claims of the Tohono O'odham Nation for its San Xavier reservation near Tucson, and reallocates 67,300 acre-feet of Non-Indian Agricultural priority CAP water to the Secretary of the Interior for use in future Indian water rights settlements in Arizona.

**2005 Community Water System planning and reporting requirements**

The Arizona legislature enacts legislation requiring community water systems (public water systems that provide water service to at least fifteen service connections or twenty-five year-round residents) to prepare a water supply plan, a drought preparedness plan and a water conservation plan every five years and submit the plans to ADWR. The legislation also requires community water systems to submit annual water use reports to ADWR.

**2006 Phelps Dodge v. Arizona Department of Water Resources**

The Arizona Court of Appeals holds that ADWR has authority to issue permits to appropriate water for instream flows, even though such an appropriation does not involve physical diversion of water.

**Creation of Statewide Water Advisory Group**

In 2006, ADWR in conjunction with rural legislative leadership and the Governor's office began a series of discussions with a group of representatives from state, county, city, tribal, private non-governmental organizations about the most immediate water resources problems facing the rural areas. The Advisory Group found an imbalance between growth and water supply planning in some rural areas of the state – varying considerably from county to county. After eight months of discussions and 14 public meetings throughout the state, ADWR introduced three bills for legislative action resulting from these discussions. A fourth bill was introduced by State Representative Jennifer Burns (R – Dist. 25). All of the bills passed into law in FY2007.

- 1) The first bill allows counties and cities to adopt requirements for demonstration of a 100-year adequate water supply for new development.
- 2) The second bill provide for a water resources revolving fund and grants to plan and build water projects.
- 3) The third bill prohibits the drilling of a well if it causes poor quality water to be drawn into another well.
- 4) The fourth bill provides for the formation of the Upper San Pedro Water District that is charged with conserving, reusing, recharging and augmenting the water supplies of the district to protect the flows of the San Pedro River and assist in meeting the water supply needs of Fort Huachuca and the surrounding communities (later defeated by vote within Cochise County)

**2007 Mandatory Water Adequacy**

The Arizona legislature enacts legislation authorizing counties and cities to adopt an ordinance requiring new subdivisions outside of AMAs to demonstrate a 100-year adequate water supply before obtaining plat approval or receiving a public report from the Arizona Department of Real Estate.

**Seven-Basin States Agreement Concerning Colorado River Management and Operations**

The Seven Colorado River Basin States join together to sign an agreement regarding Colorado River management for an interim period (until 2026). As part of the Seven States' Agreement, the States jointly submit a proposal for Colorado River operations, which is ultimately adopted by the Secretary of the Interior.

**Record of Decision on Colorado River Interim Guidelines for Lower Basin Shortages and the Coordinated Operations for Lake Powell and Lake Mead**

The Bureau of Reclamation adopts guidelines that provide for coordinated management of Lake Mead and Lake Powell. Releases from Lake Powell are determined by conditions in both reservoirs. The Interim Guidelines incorporate, and in some cases modify, the Interim Surplus Guidelines, define shortage conditions in the Lower Basin, allow for the creation of Intentionally Created Surplus (ICS) through conservation and augmentation projects, and provide for delivery of ICS subject to forbearance by the Lower Basin Contractors. The Interim Guidelines will remain in effect until 2026.

**2009 Governor's Blue Ribbon Panel on Water Sustainability**

In 2009, as part of Governor Jan Brewer's commitment to collaboration on water resource issues, the Blue Ribbon Panel on Water Sustainability was tasked with initiating a statewide effort aimed at improving the long term sustainability of Arizona's water supplies and to provide advice to ADWR, ADEQ, and the ACC on the technical, legal, and policy aspects of promoting recycling of wastewater, gray water, industrial process water, and storm water.

**2010 Minute 318**

Agreement between the United States and Mexico as part of the continuing implementation of the 1944 Mexican Water Treaty related to the use of the Colorado River. Under Minute 318, Mexico will be able to temporarily defer delivery of a portion of its annual Colorado River water allotment while repairs are made to the irrigation system in the Mexicali Valley of Baja California as a result of an April 4, 2010 earthquake.

**2011 Water Resources Development Commission Report**

The WRDC, a study Commission authorized by the Arizona legislature in 2010, releases its report analyzing the projected water demands for the following 25, 50 and 100 years in comparison to the projected available water supplies in Arizona. The WRDC Report finds that there is a possible imbalance of approximately 3.2 MAF in Arizona in the year 2110.

**2012 Arizona Celebrates its Centennial**

**Minute 319**

Agreement between the United States and Mexico as part of the continuing implementation of the 1944 Mexican Water Treaty related to the use of the Colorado River. The Minute is a five-year cooperative agreement between Mexico and the United States (on behalf of the seven Colorado River Basin States - including Arizona) that provides a framework for: long-term planning and conservation activities;

protection of water levels in Lake Mead to reduce the potential for water shortage; and potential development of additional sources of water from joint United States-Mexico water development projects.

**Colorado River Basin Water Supply and Demand Study Released**

The US Bureau of Reclamation, in cooperation with the seven Colorado River Basin States issues a comprehensive assessment of water supplies and demands in the Colorado River basin through the year 2060. The Basin Study concludes that there is a median imbalance of approximately 3.2 MAF between existing supplies and projected demands for 2060.

**2013 Bureau of Reclamation Announces Reductions in Water Releases from Glen Canyon Dam**

In August of 2013, the U.S. Bureau of Reclamation released its monthly Operation Plan for Colorado River System Reservoirs 24-Month Study (Study), which projects that releases from Lake Powell into Lake Mead in water year 2014 (October 2014 through September 2015) will be reduced by 9% as compared to 2013 (7.48 million acre-feet versus 8.23 MAF). The study also indicates that releases will most likely be 7.48 MAF again in 2015. These back-to-back reductions could cause Lake Mead's elevation to fall below the 1075 foot elevation by the end of 2015, which would result in the U.S. Secretary of the Interior declaring a Lower Basin shortage for 2016. This would be the first time the Secretary has officially announce a shortage in the Lower Basin.

## APPENDIX II – “Law of the River”

- **Colorado River Compact (1922)**
  - Divided River Between Upper Basin and Lower Basin States
    - Upper Basin States of Colorado, New Mexico, Utah, Wyoming and portion of Arizona
    - Lower Basin States of Arizona, California, and Nevada
  - Allocated 7.5 MAF to Upper Basin and 7.5MAF to Lower Basin
  
- **Boulder Canyon Project Act (1928)**
  - Authorized Federal Construction of:
    - Boulder (Hoover) Dam
    - Imperial Dam & Desilting Works
    - All-American Canal
  - Established Lower Basin Allocations
    - Arizona 2.8 MAF
    - Nevada 300 KAF
    - California 4.4 MAF
  
- **California Limitation Act (1929)**
  - Unlawful for California entities to use more than the Entitlement (4.4MAF)
  
- **California Seven Party Agreement (1931)**
  - Divided & Prioritized Colorado River Water Between Ag Users (3.85MAF) and Urban Users (500KAF)
  
- **Mexican Water Treaty (1944)**
  - Guaranteed 1.5 MAF to Mexico
  - During “Surplus” on the River provided an additional 200KAF to Mexico
  - Mexico to share proportionately any “shortages”
  
- **Upper Colorado River Basin Compact (1948)**
  - Divided Water Between Upper Basin States
    - Colorado 51.75%
    - New Mexico 11.25%
    - Utah 23%
    - Wyoming 14%
    - Arizona 50,000AF
  - Creation of the Upper Colorado River Commission
  
- **Colorado River Project Storage Act (1956)**
  - Authorized Construction of Glen Canyon Dam
    - Provides 1000 MW of hydroelectric generating capacity
    - 24 million AF Storage Reservoir
    - Provides the means for the Upper Basin States to meet their Compact obligation to the Lower Basin States
  - Also Authorized Construction of Flaming Gorge Dam, Navajo Dam, & the Aspinall Unit
  
- **AZ. v. CA. Decree (1964)**
  - Provided Arizona (and Nevada) with “rights” to in-State Streams & Rivers (Tributary Flow)
  - Confirmed the Lower Basin Entitlements

- Gave Secretary the responsibility of “Water Master” in the Lower Basin
- Allowed CA to continue to use “unused apportionment” – but gave no permanent “rights”
- Directed the Secretary to prepare an annual accounting of water use in Lower Basin
- Charged the Secretary with determining “surplus” and “shortage” conditions/operations
- Established “reserved rights” to approximately 900,000 AF to five Tribes located along River (included within the 7.5MAF allocation)
  
- **Colorado River Basin Project Act (1968)**
  - Authorized Construction of Central Arizona Project
  
- **Minute 242 - Mexican Treaty (1973)**
  - Requires U.S. to adopt measures to ensure that 1.36 million acre-feet of water delivered annually to Mexico upstream of Morelos Dam shall have an average salinity of no more than 115 (+/-30) parts per million over the annual average salinity of Colorado River water arriving at Imperial Dam.
  - Requires U.S. to deliver to Mexico, across the land boundary at San Luis, Arizona, and in the Limitrophe Section of the Colorado River downstream from Morelos Dam, approximately 140,000 acre-feet of water annually, with salinity substantially the same as that of water customarily delivered there.
  - Requires that the concrete-lined Main Outlet Drain Extension (MODE) be extended from Morelos Dam to the Cienega de Santa Clara in Mexico at United States expense.
  
- **Salinity Control Act (1974)**
  - Provided the means to comply with the obligations made by the U.S. to Mexico in Minute No. 242
  - Authorized Construction of the Yuma Desalinization Plant in Arizona
  - Authorized Construction of the Protective and Regulatory Pumping Unit – the 242 Well Field in Arizona
  
- **Arizona Water Banking Authority (1996)**
  - Established as a mechanism for Arizona to fully utilize its CAP allotment.
  - Storage of unused CAP water underground for times of shortage.
  
- **Off-stream Storage of Colorado River Water and Development and Release of Intentionally Created Unused Apportionment in the Lower Division States (1999)**
  - Enables interstate water banking in the Lower Colorado River Basin
  
- **Colorado River Interim Surplus Guidelines (2001)**
  - Defines conditions for declaration and implementation of surplus operations in the Lower Basin of the Colorado River.
  
- **Agreement for Interstate Water Banking (2001)**
  - The Arizona Water Banking Authority, the Southern Nevada Water Authority and the Colorado River Commission of Nevada reach an agreement allowing the storage of Colorado River water in Arizona for future uses in Nevada.
  
- **Record of Decision on Colorado River Interim Guidelines for Lower Basin Shortages and the Coordinated Operations for Lake Powell and Lake Mead (2007)**
  - Provide for coordinated management of Lake Mead and Lake Powell.
  - Define shortage conditions in the Lower Basin
  - Allow for the creation of Intentionally Created Surplus (ICS) in the Lower Basin through conservation and augmentation projects
  - Provide for delivery of ICS subject to forbearance by the Lower Basin Contractors.
  - \*\* The Interim Guidelines are only effect until 2026.\*\*

- **Minute 318 - Mexican Treaty (2010)**
  - In response to Earthquake Damage in Mexicali Valley – allows Mexico to store water that cannot be delivered in Lake Mead until repairs are complete
  
- **Minute 319 - Mexican Treaty (2012)**
  - Allows Mexico to create Intentionally Created Mexican Allocation (similar to ICS in 2007 Guidelines)
  - Mexico agrees to take shortages at the same Lake Mead elevations as Lower Basin states
  - Provides for a base flow and pulse flow to study restoration of the Mexican Delta
  - **\*\*Only effective until 2017\*\***

## **APPENDIX III – Arizona Stakeholder/Planning Efforts (2000-2010)**

### **Water Resources Development Commission (2010)**

In 2010, the Water Resources Development Commission was formed by HB 2661 for the purpose of assessing the current and future water needs of Arizona with greater focus on meeting the water needs in rural Arizona. The Director of the Department of Water Resources served as the Chairman of the Commission and was directed to select members to represent statewide water users and water use sectors to make up the Commission.

The WRDC was tasked to: (1) compile and consider the projected water needs of each county in Arizona in the next 25, 50 and 100 years; (2) identify and quantify the water supplies currently available in each county; (3) identify potential water supplies to meet additional demands in the same time frame, and the legal and technical issues associated with using them; (4) identify potential mechanisms for financing the acquisition, treatment and delivery of water supplies; and (5) make recommendations regarding further studies or necessary legislation required for implementation.

The Commission concluded that without proactive and localized water management strategies future water supply and demand imbalances may exist throughout the state, and, therefore, there is a need to acquire additional water supplies and develop infrastructure to access new and existing unused water supplies. The Commission recommended the formation of Regional Water Augmentation Authorities to assist communities in developing future water supplies and water infrastructure. Membership in the Regional Water Augmentation Authorities is proposed to be voluntary and may include Arizona cities, towns, private water utilities, other statutorily defined water providers, private entities, counties and State, Tribal and Federal entities. The Commission also identified current funding options available to the Regional Water Augmentation Authorities to meet the needs of their members.

### **Governor's Blue Ribbon Panel on Water Sustainability (2009)**

In 2009, as part of Governor Jan Brewer's commitment to collaboration on water resource issues, the Blue Ribbon Panel on Water Sustainability (Panel) was tasked with initiating a statewide effort aimed at improving the long term sustainability of Arizona's water supplies through increased conservation and recycling. The Director of the Arizona Department of Water Resources, Director of the Arizona Department of Environmental Quality and Chairman of the Arizona Corporation Commission made co-chaired the Panel.

The Panel was formed to identify and overcome obstacles to increased water sustainability. The Panel was challenged to provide advice to ADWR, ADEQ, and the ACC on the technical, legal, and policy aspects of promoting recycling of wastewater, gray water, industrial process water, and storm water. The Panel focused on wastewater reuse through detailed examinations of water quality, regulatory impediments, infrastructure requirements and public perception challenges that could limit the increased use of this important water supply. The Panel membership was composed of 40 members representing large and small cities, counties, agriculture, industry, Indian Tribes, environmental interests, Arizona universities, legislative leaders, and other leaders in Arizona water issues.

On November 30, 2010, the Final Report of the Governor's Blue Ribbon Panel on Water Sustainability was released. The report contains 18 sets of recommendations to advance Arizona's water sustainability future. Recommendations were organized into five categories: Education/Outreach, Standards, Information Development & Research Agenda, Regulatory Improvements, and Incentives.

### **Statewide Water Advisory Group (2006)**

In 2006, the Statewide Water Advisory Group (SWAG) was formed to identify and discuss programs needed to continue developing a reliable water supply for the future. The purpose of SWAG purpose was to advise the

Arizona Department of Water Resources regarding programs for water resources development and management necessary to provide a sustainable water supply in all parts of Arizona and generate suggestions and activities for ultimate consideration by the Legislature. SWAG membership was made up of 50 citizens and city and county government, environmental, agricultural, and resource groups.

The following legislation was initiated out of the SWAG:

- 1) Authority for County Board of Supervisors or municipalities to adopt water adequacy provisions that require new subdivisions that are located outside of AMAs to have a 100-year water supply
- 2) The creation of the Water Supply Development Revolving Fund and the Water Supply Development Fund Committee;
- 3) Provided for an initiative to be brought to the votes in a portion of the Upper San Pedro Groundwater Basin to establish the Upper San Pedro Water District to develop local authorities on water related issues, as they currently exist or may evolve over time; and
- 4) The expansion of well impact rules to apply to all wells statewide.

### **Governor's Drought Task Force (2003)**

In 2003, the Governor's Drought Task Force was established to address drought issues facing all Arizonans. This group was tasked with developing: a short-term drought plan to respond and mitigate water shortages; a long-term drought mitigation and coordination plan for the state and to address various specified areas of concern; and the development and implementation of a statewide water conservation strategy.

An Arizona Drought Preparedness Plan was created to assist State leaders, planners, and resource managers, in preparing for and responding to current and future drought conditions in Arizona. The Arizona Drought Preparedness Plan consists of two components: Background and Impact Assessment defines drought in Arizona, provides an historical context of drought, and catalogues the historical impacts and sources of drought vulnerability of water use sectors and water supplies; and an Operational Drought Plan that identifies regional vulnerability to drought impacts, identifies drought response options, defines drought mitigation strategies, outlines monitoring activities and programs to alert water users and resource managers of the onset of drought, and provides an implementation plan to respond to drought events.

### **Governor's Water Management Commission (2000)**

In 2000, the Governor's Water Management Commission was established with the purpose of evaluating the goals outlined in the 1980 Groundwater Management Code to assure that they remain achievable; study ways to reduce the use of mined groundwater and increase the use of renewable supplies; and to make recommendations regarding changes to statutes or rules to ensure that Arizona's management practices will help to achieve a long-term, reliable water supply.

## APPENDIX IV – Acronyms and Abbreviations

4FRI	Four Forest Restoration Initiative
A.R.S.	Arizona Revised Statutes
ACC	Arizona Corporation Commission
ADEQ	Arizona Department of Environmental Quality
ADWR	Arizona Department of Water Resources
AF	Acre-Feet
AFY	Acre-Feet per Year
AMA	Active Management Area
ASLD	Arizona State Land Department
AWBA	Arizona Water Banking Authority
AZGF	Arizona Game and Fish Department
Basin	Groundwater Basin
Basin States	Colorado River Basin States
Basin Study	Colorado River Basin Water Supply and Demand Study
BIA	U. S. Bureau of Indian Affairs
BLM	U.S Bureau of Land Management
CAGR D	Central Arizona Groundwater Replenishment District
CAP	Central Arizona Project
CFS	cubic feet per second
CSP	Concentrated Solar Power
CWA	Clean Water Act
DWID	Domestic Water Improvement District
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
ESRV	East Salt River Valley
FICO	Farmers Investment Company
FMC	Freeport McMoRan Copper and Gold, Inc.
Forest Service	U.S. Department of Agriculture Forest Service
FWS	U.S. Fish and Wildlife Service
GMA	Groundwater Management Act
gpm	Gallons per minute
GSF	Groundwater Savings Facility
GWSI	Groundwater Site Inventory Program
HCP	Habitat Conservation Plan
ID	Irrigation District
IDD	Irrigation and Drainage District
INA	Irrigation Non-Expansion Area
LCR MSCP	Lower Colorado River Multi-Species Conservation Program
M&I	Municipal and Industrial
MAF	Million Acre-Feet
MCWA	Mohave County Water Authority
MGD	Millions Gallons per Day
MVIDD	Mohave Valley Irrigation and Drainage District

MWh	Megawatt hour
NDWR	Navajo Department of Water Resources
NEPA	National Environmental Policy Act
NGS	Navajo Generating Station
NIA	Non-Indian Agricultural
NPL	National Priorities List
NRA	National Recreation Area
NWR	National Wildlife Refuge
P.L.	Public Law
PCE	Perchloroethylene
RCRA	Resource Recovery and Conservation Act
Reclamation	U.S. Bureau of Reclamation
S&T	Sever and Transfer
SAWRSA	Southern Arizona Water Rights Settlement Act
Settlements Act	Arizona Water Settlements Act
SGCTP	South Grand Canyon Treatment Plant
SNWA	Southern Nevada Water Authority
SPRNCA	San Pedro Riparian National Conservation Area
SRP	Salt River Project
TCE	Trichloroethylene
TDS	Total dissolved solids
TMDL	Total Maximum Daily Load
TNC	The Nature Conservancy
USDA	U.S. Department of Agriculture
USDOI	U.S. Department of Interior
USF	Underground Storage Facility
USGS	U.S. Geological Survey
WMIDD	Wellton-Mohawk Irrigation and Drainage District
WQARF	Water Quality Assurance Revolving Fund
WRDC	Water Resources Development Commission
WWTP	Waste Water Treatment Plant
YDP	Yuma Desalting Plant

## APPENDIX V – Definitions and Key Terms

**Acre-foot (AF):** The volume of water needed to cover one acre of land, one foot deep; one acre-foot is 325,851 gallons or approximately enough water to provide for approximately two families of four living in a single-family home for one-year.

**Active Management Area:** A geographic area that has been designated pursuant to A.R.S. § 45-411 as requiring active management of groundwater or, in the case of the Santa Cruz AMA, active management of any water, other than stored water, withdrawn from a well.

**Agricultural water use:** Water applied to two or more acres of land to produce plants or parts of plants for sale for human consumption or for use as feed for livestock, range livestock or poultry.

**Alluvium:** A deposit of earth, sand, and other transported matter left by water flowing over land not permanently submerged; chiefly applied to the deposits formed in river valleys and deltas.

**Artificial recharge:** Water recharged to the aquifer through recharge projects, which may be recovered annually or in the future based on accrued recharge credits.

**Aqueduct:** An artificial channel for conveying water.

**Aquifer:** A geologic formation that contains sufficient saturated materials to be capable of storing water and transmitting water in usable quantities to a well.

**Augmentation:** To supplement existing water supplies.

**Baseflow:** The part of a stream discharge that is not attributable to direct runoff from precipitation or melting snow. It is sustained by groundwater discharge and may be considered as normal day-to-day flow during most of the year.

**Brackish Groundwater:** Brackish water supplies are more highly saline than fresh water, but have lower salinity than seawater. Brackish groundwater is defined as having a total dissolved solids (TDS) concentration between 1,000 and 10,000 milligrams per liter (mg/L).

**Colorado River Basin States (Basin States):** In accordance with the Colorado River Compact of 1922, the Colorado River Basin is comprised of parts of Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming, within and from which waters drain naturally into the Colorado River. These seven states are referred to as the Basin States.

**Community Water System:** A public water system, as defined in A.R.S. § 49-352(B), that serves at least fifteen service connections used by year-round residents of the area served by the system or that regularly serves at least twenty-five year-round residents of the area served by the system.

**Desalination:** The process of removing dissolved salts from water, thus producing fresh water from seawater or brackish water.

**Drought:** A sustained natural reduction in precipitation that results in negative impacts to the environment and human activity.

**Earth fissure:** Fractures or cracks that form in alluvial basins due to substantial groundwater overdrafts that produce local subsidence.

**Evapotranspiration:** Term describing the transport of water into the atmosphere from surfaces, including soil (soil evaporation), and from vegetation (transpiration).

**Exempt well:** Within an AMA, a well having a pump with a maximum pumping capacity of 35 gallons per minute or less, which is used to withdraw groundwater for non-irrigation purposes. This term is also used to describe any well outside an AMA having a pump with a maximum pumping capacity of 35 gallons per minute or less.

**General Stream Adjudication:** A judicial proceeding to determine or establish the extent and priority of water rights in the Gila and Little Colorado River Systems.

**Groundwater:** Water under the surface of the earth regardless of the geologic structure in which it is standing or moving. Groundwater does not include water flowing in underground streams with ascertainable beds and banks.

**Groundwater Basin:** An area which may be designated so as to enclose a relatively hydrologically distinct body or related bodies of groundwater, which shall be described horizontally by surface description.

**Groundwater Savings Facility:** A facility that meets the requirements of *A.R.S. §45-812.01* in an active management area or an irrigation non-expansion area at which groundwater withdrawals are eliminated or reduced by recipients who use in lieu water on a gallon-for-gallon substitute basis for groundwater that otherwise would have been pumped from within that active management area or irrigation non-expansion area.

**Hydroelectricity:** Electric current produced from water power.

**Hydroelectric power:** Electrical capacity produced by falling water.

**Hydrograph:** A graphic representation of the changes in the flow of water or the elevation of water levels over time.

**Industrial water use:** A non-irrigation use of water not supplied by a city, town or private water company, including animal industry use and expanded animal industry use.

**Irrigation Non-Expansion Area (INA):** A geographic area that has been designated pursuant to *A.R.S. § 45-431 or 45-432* as having insufficient groundwater to provide a reasonably safe supply for the irrigation of cultivated lands at the current rate of withdrawal. Within INA's, new agricultural use

occurring on land that was not irrigated in the five years preceding the designation of the INA is prohibited with a few exceptions for substitution or transfer of acres under specified circumstances.

**Importation:** To bring new water supplies from outside of Arizona.

**Land subsidence:** Land subsidence is the lowering of the elevation of the ground surface usually caused by the over-extraction of groundwater, oil, gas, or other material.

**Lower Colorado River Basin States (Lower Basin):** The states of Arizona, California, and Nevada make up the Lower Colorado River Basin.

**Mainstem:** The main course of a river or stream.

**Municipal water use:** All non-irrigation uses of water supplied by a city, town, private water company or irrigation district, except for uses of water, other than Colorado River water, released for beneficial use from storage, diversion or distribution facilities to avoid spilling that would otherwise occur due to uncontrolled surface water inflows that exceed facility capacity.

**Overdraft:** Occurs when more groundwater is being pumped than the amount of water naturally or artificial recharged to the aquifer.

**Present Perfected Rights:** A water right recognized by the U.S. Supreme Court Decree of 1964 in Arizona v. California which existed prior to June 15, 1929 (the effective date of the Boulder Canyon Project Act). The 1979 Supplemental Decree of the U.S. Supreme Court in Arizona v. California lists and quantifies these Present Perfected Rights.

**Prior Appropriation:** The surface water right doctrine applicable in those portions of Arizona not receiving Colorado River water. This doctrine is based on the tenet of "first in time, first in right" which means that the person who first puts the water to a beneficial use acquires a right that is superior to later appropriators of the water.

**Rainwater harvesting:** The collection of rainwater for future uses.

**Reasonable and Beneficial Use:** A legal doctrine that describes the limit and extent of water use.

**Recharge:** Water added to the aquifer through seepage and infiltration.

**Reclaimed water:** Water that has been collected in a sanitary sewer for subsequent treatment in a facility that is regulated as a sewage system, disposal plant or wastewater treatment facility. Such water remains effluent until it acquires the characteristics of groundwater or surface water.

**Reservoir:** An artificially created lake where water is collected and stored for future use.

**Runoff:** Water from rain or snow that flows over the surface of the ground into streams.

**Safe-yield:** A groundwater management goal which attempts to achieve and thereafter maintain a long-term balance between the annual amount of groundwater withdrawn in an active management area and the annual amount of natural and artificial recharge in the active management area.

**Surface water:** The waters of all sources, flowing in streams, canyons, ravines or other natural channels, or in definite underground channels, whether perennial or intermittent, floodwater, wastewater or surplus water, and of lakes, ponds and springs on the surface.

**Transportation:** The movement of groundwater from the point of withdrawal to the point of use.

**Underground Storage Facility:** means a constructed underground storage facility or a managed underground storage facility. "Constructed underground storage facility" means a facility that meets the requirements of section A.R.S. § 45-811.01 and that is designed and constructed to store water underground pursuant to permits. "Managed underground storage facility" means a facility that meets the requirements of section A.R.S. § 45-811.01 and that is designed and managed to utilize the natural channel of a stream to store water underground pursuant to permits through artificial and controlled releases of water other than surface water naturally present in the stream. Surface water flowing in its natural channel is not a managed underground storage facility.

**Tributary:** A river or stream flowing into a larger river or lake.

**Upper Colorado River Basin States:** The states of Colorado, New Mexico, Utah and Wyoming make up the Upper Colorado River Basin.

**Water Storage:** Adding water to an aquifer or saving water in an aquifer.

**Weather modification:** The application of scientific technology that can enhance a cloud's ability to produce precipitation.