

State of Arizona

**DEPARTMENT OF
WATER RESOURCES**



ANNUAL REPORT

Fiscal Year 2015



DOUGLAS A. DUCEY
Governor

THOMAS BUSCHATZKE
Director

ARIZONA DEPARTMENT of WATER RESOURCES
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July 1, 2015

The Honorable Douglas A. Ducey
Governor of Arizona
1700 West Washington Street
Phoenix, AZ 85007

The Honorable Andy Biggs
President, Arizona State Senate
1700 West Washington, Suite 205
Phoenix, AZ 85007

The Honorable David M. Gowan, Sr.
Speaker, Arizona House of Representatives
1700 West Washington, Suite 221
Phoenix, AZ 85007

Dear Governor Ducey, President Biggs, and Speaker Gowan:

I am pleased to submit to you the Arizona Department of Water Resources Annual Report for Fiscal Year 2015 as required by A.R.S. §45-111. This report includes an overview of the Department's functions, water management challenges as well as our accomplishments between July 1, 2014 and June 30, 2015.

The Arizona Department of Water Resources is proud of our accomplishments during Fiscal Year 2015 and will continue to implement Arizona's water management laws and programs to secure the State's long-term dependable water supplies. While challenges to providing a sustainable water supply are numerous, the Department continues to make progress toward this goal. Competition for water throughout the Southwest United States continues to increase and Arizona must continue to be vigilant to protect its water rights, particularly its rights to Colorado River water. It is essential that our State continue to play a prominent role protecting Arizona's Colorado River water supply, operations and allocation issues, as well as continue to protect Arizona's groundwater and surface water supplies for future generations.

Sincerely,

A handwritten signature in blue ink, appearing to read "Thomas Buschatzke", written over a light blue circular watermark.

Thomas Buschatzke
Director

ADWR'S OPERATIONS

In 1980, the Arizona Department of Water Resources (ADWR) was created to ensure dependable long-term water supplies for Arizona's growing communities. ADWR succeeded to the "authority, powers, duties and responsibilities of the Arizona Water Commission and the State Water Engineer relating to surface water, groundwater and dams and reservoirs." A.R.S. § 45-103(A). The Director of ADWR "has general control and supervision of surface water, its appropriation and distribution, and of groundwater to the extent provided by this title, except distribution of water reserved to special officers appointed by courts under existing judgments or decrees." A.R.S. § 45-103(B). Further, the Director is authorized, for and on behalf of the State of Arizona, to consult, advise and cooperate with the United States on issues related to the Colorado River. A.R.S. § 45-107.

To carry out its statutory responsibilities, ADWR administers state water laws (except those related to water quality), explores methods of augmenting water supplies to meet future demands, and works to develop public policies that promote conservation and equitable distribution of water. ADWR oversees the use of surface and groundwater resources under state jurisdiction and negotiates with external political entities to protect and augment Arizona's water supply.

Arizona's water supplies consist of: Surface water, including Colorado River water and in-state rivers; groundwater; and reclaimed water (also known as effluent).

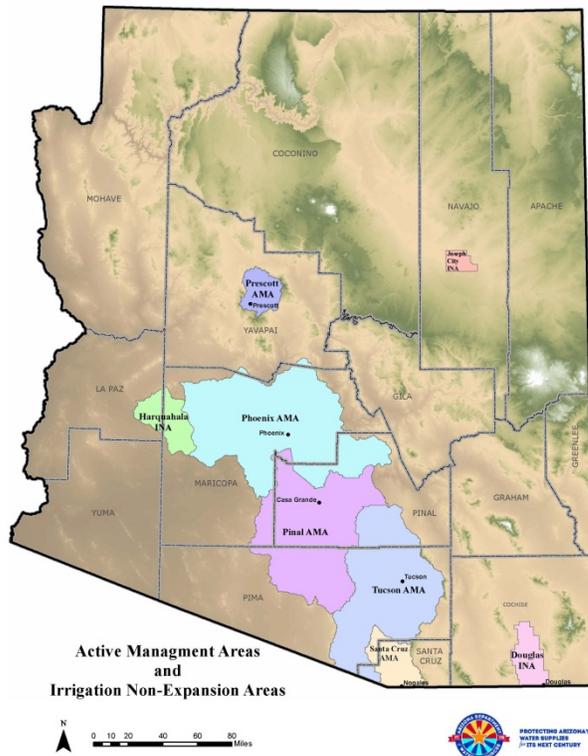
Arizona's Annual Water Supply Budget			
Water Source	Million Acre-Feet (maf)		% of Total
SURFACE WATER			57.2%
Colorado River		2.8	40.2 %
<i>CAP</i>	<i>1.6</i>		<i>22.5%</i>
<i>On-River</i>	<i>1.2</i>		<i>16.9%</i>
In-State Rivers		1.2	17%
<i>Salt-Verde</i>	<i>.7</i>		<i>12.7%</i>
<i>Gila & others</i>	<i>.5</i>		<i>7.0%</i>
GROUNDWATER		2.8	39.5%
RECLAIMED WATER		0.2	3.3%
Total		7 maf	

Groundwater Management

To address groundwater depletion in the state's most populous areas, the state Legislature enacted the Groundwater Code in 1980, and directed ADWR to implement its provisions. The goal of the Code is twofold: 1) to control severe groundwater depletion and 2) to provide the means for allocating Arizona's limited groundwater resources to most effectively meet the state's changing water needs.

Active Management Areas

Areas where groundwater depletion was most severe were designated as Active Management Areas (AMAs). There are five AMAs: Prescott, Phoenix, Pinal, Tucson, and Santa Cruz. These areas are subject to regulation pursuant to the Groundwater Code. To meet the statutory requirements of the Code, management goals were established for each AMA. In the Phoenix, Prescott, Tucson and Santa Cruz AMAs, the management goal is to achieve safe-yield by the year 2025. Safe-yield is accomplished when on average, no more groundwater is being withdrawn than is being replaced annually. In the Pinal AMA, where the economy is primarily agricultural, the management goal is to preserve that economy for as long as feasible, while considering the need to preserve groundwater for future non-irrigation uses. In addition to maintaining its safe-yield status, the Santa Cruz AMA goal is to prevent local water tables from experiencing long-term decline. Each AMA carries out its programs in a manner consistent with these goals while considering and incorporating the unique character of each AMA and its water users.



83% of the state's total population resides within the Active Management Areas

- Municipal Use - 86% of Statewide use is under mandatory conservation program requirements
- Industrial Use – 61% of Statewide use is under mandatory conservation program requirements
- Agricultural Use– 39% of Statewide use is under mandatory conservation program requirements

Irrigation Non-Expansion Areas

Areas where groundwater depletion was less severe were designated as Irrigation Non-Expansion Areas (INAs). These lands had been legally irrigated at any time between January 1, 1975 and January 1, 1980 may continue to be irrigated. There are three INAs: Joseph City INA, Douglas INA and the Harquahala INA.

Management Plans

Management plans reflect the evolution of regulation under the Groundwater Code, assisting in moving each AMA toward achieving their long-term water management goals. Through the Management Plans, ADWR establishes conservation goals for each water use sector: agriculture; municipal including cities, towns, and private water companies by statute; and industrial including mining, golf courses, electric power generation, dairies, and feedlots.

Assured and Adequate Water Supply Program

The Groundwater Code also established requirements to ensure that water supplies are adequate to meet the long-term needs of new development. The Assured Water Supply Program requires developers of new subdivisions within AMAs to demonstrate that sufficient water supplies of adequate quality are physically, continuously, and legally available for 100 years; that any groundwater use is consistent with the AMA's management plan and management goal; and the financial capability to construct the necessary transmission, delivery, and treatment facilities is available. Rules associated with this program require the use of renewable supplies, such as reclaimed water, surface water, and/or Colorado River water delivered via the Central Arizona Project (CAP).

For areas outside AMAs, the Adequate Water Supply Program requires that the developer inform potential buyers of newly subdivided land of the availability of water for the property. The Adequate Water Supply Program does not prevent the sale of property when a 100-year supply is not available unless the city, town, or county in which the subdivision is located has adopted the mandatory water adequacy ordinance. Cochise and Yuma Counties and the Towns of Patagonia and Clarkdale have adopted the mandatory water adequacy ordinance. Requirements under these programs serve to advise consumers of subdivided land of the long-term available water supply.

Recharge Program

The Recharge Program allows injection or infiltration of surface water and Colorado River water delivered via the CAP or reclaimed water into an aquifer for storage. The Recharge Program has proven to provide a cost effective way to both store water for future use and to provide an indirect mechanism to treat and deliver renewable supplies.

Regional Planning

ADWR continues to be active in regional water resource planning. Regional planning efforts include data collection and technical studies of specific areas throughout the State, conducted through contractual agreements with the United States Bureau of Reclamation (Reclamation) and the United States Geological Survey (USGS).

During the last fiscal year, the Reclamation and the seven Colorado River Basin States (including Arizona) continued work on the Moving Forward Phase I reports as part of the Colorado River Basin Water Supply and Demand Study Moving Forward effort initiated in 2013. The Phase I Report was released in May of 2015.

In response to the Colorado River Basin Water Supply and Demand Study which targeted agricultural fallowing and water transfers, the Yuma County Agricultural Water Coalition (Coalition) embarked on preparation of "A Case Study in Efficiency – Agriculture and Water Use in the Yuma, Arizona Area". The Coalition wanted to describe the uniqueness of the Yuma area and illustrate that because of a combination of factors, including geographic location, fertile soils, agricultural efficiency, technological innovation, the Yuma area is one of the most productive agricultural centers in the United States. ADWR attended numerous meetings with the Coalition and provided strategic direction, technical and financial assistance in development of the case study.

ADWR is also actively involved with in-state planning to assess potential demand and supply challenges in rural areas of the state as well as within the active management areas. Specifically, in this fiscal year, ADWR completed the Mohave County Demand and Supply Assessment (Assessment) for the Mohave County Water Authority (MCWA). The Assessment will serve as a long-term planning tool for the MCWA members and it was adopted at their June 2015 meeting.

Rural Water Studies

ADWR actively participates in six rural watershed partnership groups that represent water interests outside of the AMAs. ADWR provides technical and policy advice and assistance to these groups and attends multiple meetings per month associated with the governing bodies, executive committees and technical advisory committees associated with the watershed partnerships. The activities of the different rural watershed groups vary greatly. In areas such as the Coconino Plateau (Flagstaff and surrounding areas), the Verde River (Clarkdale to Camp Verde), the Yuma area and other Colorado River cities, significant water resources planning is necessary to meet projected water supply needs.

In addition to participation with the rural watershed partnership groups, ADWR also participated in various studies, analyses and data collection activities in rural areas. ADWR has a Special Line Item Appropriation that funds personnel and water resources data collection and investigation assisting the rural communities with long-term planning and management programs. These data collection efforts and their expansion directly support the expanded monitoring strategy identified in the Governor's Strategic Vision for Water Supply Sustainability.

Colorado River Management

The Colorado River is a vital resource to the desert southwest, serving seven states – including Arizona, several Indian tribes and Mexico. ADWR is the state entity charged with promoting, protecting, and comprehensively managing Arizona's annual apportionment of 2.8 million acre-feet of Colorado River water. This apportionment is important to Arizona's current and future economic development and is critical to the state's water management policies.

Engineering and Permits

ADWR engineering and permitting activities are focused in three areas: Water Rights Administration, Adjudications Support, and Flood Hazard Management.

Water Rights Administration

Water Rights Administration programs promote the fair and equitable use of water through the issuance of permits for surface water use and groundwater withdrawal; and also reduce risk to health and groundwater quality through issuance of well drilling permits.

In AMAs, groundwater pumping from non-exempt wells requires a groundwater right or withdrawal authority from ADWR. State law assesses withdrawal fees¹ and requires annual groundwater withdrawal and use reports to be filed for pumping from non-exempt wells within AMAs. Exempt wells² are not subject to these requirements. Groundwater use outside of AMAs does not require a groundwater right. However, drilling a well anywhere in the state requires that a Notice of Intent to Drill be filed with ADWR and also requires the well to be constructed in conformance with ADWR's minimum well construction standards. The Groundwater and Wells Program issues groundwater withdrawal permits, processes conveyances of groundwater rights and notices of intent to drill or modify wells, issues well driller licenses, and manages and maintains a registry of groundwater rights and wells information.

Surface water, with the exception of Colorado River water is subject to the "doctrine of prior appropriation," meaning that the first person to legally put the water to beneficial and reasonable use has a right senior to later appropriators. Under statutes that have been in place since 1919, rights to use surface water primarily are obtained through a permitting process at ADWR that may result in a certificate of water right after the water has been put to beneficial use. Surface water rights may be used to support claims in the adjudication process. The Surface Water Program issues permits and certificates for rights to use surface water within the State of Arizona, excluding the Colorado River, processes assignments of surface water rights and claims, and manages and maintains a registry of rights and claims. This program also maintains records related to water rights in both computer and physical files, which are available to the public.

¹ Withdrawal fees are statutorily required to fund ADWR's Conservation and Augmentation Assistance Programs and the Arizona Water Banking Authority.

² Wells having a maximum pumping capacity of 35 gallons per minute or less.

Adjudications Support

The State of Arizona is conducting general stream adjudications of surface water rights in two major portions of the state: the Gila River System and Little Colorado River System. Adjudications are judicial proceedings conducted in State Superior Court for Maricopa and Apache Counties to determine the nature, extent and relative priority of the water rights of all persons in each river system and source. This includes surface water rights and claims to surface water based upon both state and federal law. The Adjudication Support Program investigates claims for water rights; publishes comprehensive Hydrographic Survey Reports for watersheds and federal reservations, and prepares technical reports on other issues and factual matters as requested by the adjudication court. This program also processes, maintains and updates information related to statements of claimant (SOC) filed by water users in the adjudication court proceeding. In addition, based on information in ADWR's records, this program notifies new water users that the adjudication proceedings are underway and provides information about how to participate in the court process through the mailing of new use summons.

Flood Hazard Management

Flood Hazard Management programs reduce risk to life and property by supervising the safe construction and operation of non-federal dams and assisting local flood control and floodplain management efforts. The Dam Safety Program supervises the safety of jurisdictional dams in Arizona by reviewing and approving permits for construction of new dams and repairs to existing dams, inspecting dams and working with dam owners to remediate safety deficiencies. The Flood Warning Program coordinates with local communities, state and federal agencies for the planning, design, construction and operation of flood warning systems, operates and maintains field equipment, hosts the statewide flood warning website (<http://wp.afws2.org/>). The Floodplain Management Program coordinates the National Floodplain Insurance Program (NFIP) in Arizona, assists local communities participating in the NFIP through implementation of the federally-funded Community Assistance and RiskMAP programs, and publishes state criteria for floodplain delineations at the local level.

Hydrology Support

ADWR hydrologists serve as the technical arm of the ADWR, collecting and analyzing statewide water resource data and maintaining the state's Groundwater Site Inventory (GWSI) database. Hydrologic conditions are calculated and analyzed in preparing reports in response to legislative and judicial requests, public inquiries and water management planning efforts. ADWR hydrologists are often assigned to work on the scientific components of specific research projects and are also consulted in making determinations on permit applications. ADWR prepares regional groundwater models that frequently serve as the basis for evaluating water management alternatives and the projected impacts of proposed development in the State. These models are provided to the water using community, their technical representatives, and the public and commonly serve as the foundations for applications under the Assured and Adequate Water Supply Program. ADWR hydrology field staff routinely makes manual groundwater level measurements at over 1,800 "Index"

wells throughout the state. Additionally, the state Legislature has supported ADWR efforts to obtain more groundwater data around the state through the Automated Monitoring Initiative. This groundwater data collection effort relies on radio telemetry and satellite technology to obtain water level measurements in areas of the state where groundwater information is lacking. ADWR collects micro-gravity data to monitor changes in groundwater storage in the Pinal and Phoenix Active Management Areas. ADWR also uses remote sensing in conjunction with satellite Interferometric Synthetic Aperture Radar (INSAR) data to study land subsidence areas throughout the state.

Land Subsidence Monitoring

ADWR is the State Agency tasked to monitor land subsidence. An AMA can be created because of land subsidence and earth fissures. Land subsidence is a regional problem where groundwater pumping has exceeded the natural recharge of the groundwater, resulting in declining groundwater levels and land subsidence. Land subsidence has damaged highways, flood control structures and floodways, canals, various types of pipelines, well casings, and even homes. Land subsidence has also altered the natural drainage patterns, causing flooding in new areas that never flooded. Understanding where land subsidence is occurring helps groundwater modelers model future land subsidence from groundwater declines as well as planners and engineers to try and mitigate land subsidence.

ADWR has the largest statewide land subsidence monitoring program using satellite based synthetic aperture radar data which is processed by ADWR using interferometry (InSAR). ADWR is recognized as a leader with InSAR and the State of California is recommending that its own InSAR program be modeled based on ADWR's InSAR program. ADWR currently has 14 InSAR cooperators who consist of Federal, State, County and local agencies and water providers. These InSAR cooperators provide more than \$160,000 to the InSAR program funding the data collection. The InSAR cooperators then use the land subsidence data for their own land subsidence monitoring, modeling, mitigation, design, and planning projects.

ADWR collects micro-gravity data in both the Phoenix and Pinal AMAs to monitor the change in aquifer storage to better understand aquifer health. Manual groundwater measurements are a single point measurement, but the gravity data is a more regional measurement that is measuring the change in mass of the groundwater. The change in mass of groundwater is calculated by using the change in gravity between measurements. The change in aquifer storage is then used for calculating the water budgets in both the Pinal and Phoenix AMA groundwater models.

BUDGET- FISCAL YEAR 2016

The total ADWR State appropriation for FY 2015-2016 is \$15,159,400. This appropriation includes special line items as follows:

Operating lump sum appropriation	\$9,204,800
Adjudication support	1,251,800
Assured and adequate water supply administration	1,983,200
Rural water studies	1,164,500
Conservation and drought program	408,300
Automated groundwater monitoring	409,400
Lower Colorado River Litigation Expenses	500,000
Water Banking Fund	237,400
TOTAL:	\$15,159,400

ACCOMPLISHMENTS IN FY 2014-2015

Agency Wide

Lean Transformation Process

ADWR is currently undergoing the Lean Transformation throughout Arizona State Government initiative. The goal of this process is to make State agencies more efficient in their business processes. ADWR's initial pilot project was focused on streamlining the Underground Storage Facility (USF) permit process, this pilot project was chosen by the Government Transformation Office as one of the twenty permits to go through the Lean Transformation of Arizona State Government Program. The scope of the project was to examine the issuance, renewal or modification of an USF permit process from the point of the pre-application meeting through the issuance of the Director's Decision Letter which approves or denies the application. The project goal was to reduce the average lead time for USF applications from 385 days to 185 days. The team streamlined the pre-application processes to minimize administrative incomplete and inaccurate issues. Moving forward the goal is to focus the review on hydrologic feasibility & unreasonable harm as these are the fundamental tenets of the program. Through this process ADWR identified a potential savings of \$5,782 for the applicant which equals approximately 50 hours of ADWR staff processing time.

ADWR is currently working on a second pilot project that focuses on the issuance of Notice of Intent to drill an exempt well permits. Upon review of the process staff has found that the processing lead time is excessive for Notice of Intent (NOI) applications. Currently, 80% of the applications submitted are incomplete or inaccurate. These delays can create additional expenditures, construction setbacks, and significant dissatisfaction. The goal for this application is to reduce the average lead

time for NOI applications from 12 calendar days to 6 calendar days as well as to reduce staff processing time which is currently at 7.93 hours to 7.66 hours and a total elapsed time from a current rate of 96 hours to 48 hours. The future state benefits that have been identified are to decrease incomplete and inaccurate letter time that the application is on hold, from 90-60 days, provide additional application self-help information on the website as well as implementing a more organized review process where ADWR staff is able to approve and mail a completed application the same day. The anticipated time period to have this process implemented is June 30, 2015.

Future projects to undergo the lean process include the application and permitting process for the Designation or Modification of Assured/Adequate Water Supply which facilitates development/developers within a water provider's service area because a 100-year water supply is already proven by a provider (cities, towns and private water companies). This process will focus on highly complex applications that, while not great in annual submittals, are greatly important to the water resource management within Arizona.

Stakeholder Engagement

The Colorado River system has experienced extensive drought conditions for over 15 years, resulting in Lake Mead dropping to historically low reservoir levels. As a result of these conditions the possibility for a shortage could be declared on the Colorado River as soon as 2017. A shortage declaration is not unexpected. Arizona is prepared for potential Colorado River shortages because we have implemented innovative water management strategies to secure dependable water supplies. In an effort to provide stakeholders with the most relevant and timely information available related to current Colorado River conditions and possible shortage impacts to Arizona, ADWR and Central Arizona Project co-hosted a Colorado River Shortage Preparedness Workshop. There were nearly 300 individuals that participated in the event. Participants included US Congressional and Senate staff, the Governor's Office, State legislators, tribal leaders, representatives from California and Nevada, cities, industrial and agricultural water users, on-river water users and members of the media and the public. In advance of the workshop ADWR worked with CAP and other stakeholders to develop Colorado River shortage impacts messaging. ADWR created a webpage dedicated to Arizona's efforts to respond to a potential Colorado River shortage declaration.

The Colorado River Shortage Preparedness webpage is available at:

<http://www.azwater.gov/azdwr/ColoradoRiverShortagePreparedness.htm>

Continuing Efforts to Enhance Public Access to our Data

ADWR developed the Colorado River Management dashboard which displays certain key indicators that are pertinent to the management of the Colorado River and of importance to Colorado River users. Most of the indicators are integrated with external websites to provide real-time updates for Lake Mead and Lake Powell elevation levels, whereas the Colorado River System Reservoir Status the US Bureau of Reclamation 24-month study results are updated as new information becomes available. Widgets that display snow pack levels and drought status are more seasonal and are

updated regularly. The Colorado River dashboard is available on ADWR's website at: <http://www.azwater.gov/azdwr/StatewidePlanning/CRM/WaterLevels.htm>

Additionally, an ADWR page was developed and included on the Glen Canyon Dam Adaptive Management wiki site to provide a snapshot of Arizona's water management policies and activities. This wiki site is regularly updated with pertinent information. The wiki is available at: http://gcdamp.com/index.php?title=Stakeholder_Page-Arizona

Colorado River Management

Colorado River Basin Drought Contingency and Sustainability Planning

In Fiscal Year 2015, the seven Colorado River Basin States along with the Bureau of Reclamation continued collaborative discussions related to drought contingency and sustainability planning. The discussions include projections of critical reservoir levels in Lakes Mead and Powell and how adding volumes of water to those Lakes through augmentation or conservation might lessen the risk of reaching or falling below those critical elevations. The goal is to reduce the risks that were attendant to projections made in the mid-2000s, six years into the current 15+ year drought. Ultimately, a goal of adding a cumulative total of 1.5 to 3 million acre-feet through 2019 ("protection volumes") was agreed upon. A Memorandum of Understanding among ADWR, Nevada and California was executed in December 2014 that requires Reclamation and municipal agencies in each state to use their best efforts to create Lake Mead protection volumes as follows: Central Arizona Water Conservation District (CAWCD), 345,000 acre-feet; Metropolitan Water District of Southern California, 300,000 acre-feet; Southern Nevada Water Authority, 45,000 acre-feet and Reclamation, 50,000 acre-feet through 2017.

One activity that CAWCD has undertaken to create their protection volume is a fallowing program with the Yuma Mesa Irrigation and Drainage District. ADWR has worked cooperatively with CAWCD and Reclamation to develop a method and to establish procedures to certify the reduction in consumptive use associated with agricultural land fallowing in the Yuma area. Augmentation is another component of drought contingency and sustainability planning. ADWR provided financial support, with other Basin States entities, for a long term weather modification project being conducted in Wyoming.

There are opportunities for activities to be taken in the Yuma area to conserve water in Lake Mead. Bypass flows are predominantly comprised of drainage pumping from the Wellton-Mohawk Irrigation and Drainage District (WMIDD). The bypass flows are generated by WMIDD and move through the Bypass Drain to Mexico where they are delivered outside of the water deliveries to Mexico under the treaty. The first Bypass Flow Workgroup (BFWG) meeting was convened and co-chaired by Reclamation and ADWR in March of 2015. The objective of the group is to aid in reducing further decline of Colorado River reservoirs by identifying, analyzing and recommending a set of options that collectively conserve at least 100,000 acre-feet of water annually in Lake Mead by reducing, replacing or recovering a like amount of the bypass flows in a fiscally, legally, bi-nationally and

environmentally responsible manner. Subsequent meetings have focused on identifying options to achieve the objective. It is anticipated that the BFWG will complete its efforts sometime in 2016.

Minute 319 Implementation and Initiation of Minute 32X Discussions

On November 20, 2012, the United States and Mexico entered into Minute 319, a binational agreement developed within the construct of the treaty that provides for cooperative measures to be taken in the Colorado River basin through 2017. Through calendar year 2014, Mexico's net deferred deliveries under Minute 319 resulted in a total of almost 240,000 acre feet of water retained within the system which supports Lake Mead reservoir elevations.

To implement Minute 319 work groups were created to address agreed upon elements of the Minute. ADWR continues to participate in the Environmental Flows, Miguel Aleman habitat restoration site, Water Accounting and Operations, Basin Conditions and Hydrology and the Rosarito Desalination Plant working groups. The Binational Rosarito Desalination Plant Working Group is of particular interest and is working toward developing high level legal, strategic and technical framework for binational desalination opportunities that would benefit both the US and Mexico. In addition, the work group members from the Basin States and the United States have developed talking points that outline the Minute, its elements and the progress of the work groups.

Also in Fiscal Year 2015, the initial discussion regarding Minute 32X, the subsequent minute, began. ADWR is one of the five state representatives on the Minute negotiating workgroup along with representatives from the US State Department, the US Department of the Interior and Mexico federal and local government representatives.

In Fiscal Year 2015, ADWR participated in the Minute 319 Pulse Flow reunion meeting and tour of the Limitrophe, Miguel Aleman restoration site and the Laguna Grande restoration sites. The tour and the meeting was intended to report on the monitoring efforts of the pilot program.

Non-Indian Agricultural (NIA) Priority Central Arizona Project (CAP) Water Reallocation

The Arizona Water Settlement Agreement and the Arizona Water Settlements Act provided for the reallocation of 96,295 acre feet of relinquished NIA Priority CAP water for non-Indian municipal and industrial uses in the state of Arizona. This water was reallocated to ADWR to be held in trust for further allocation. ADWR conducted a thorough process to develop the criteria for the reallocation process, held stakeholder outreach meetings and developed a recommendation for the allocation that was submitted to the US Secretary of the Interior on January 16, 2014.

Since ADWR's recommendation was submitted, Reclamation has determined what will be required to meet National Environmental Policy Act (NEPA) compliance. ADWR has entered into a Memorandum of Understanding to participate as a cooperating agency, with CAWCD and Reclamation on the preparation of an Environmental Assessment to evaluate the effects of the proposed reallocation and memorialize the decision regarding the reallocation recommendation. Completion of the NIA Priority CAP water reallocation is not expected to occur until 2017.

Colorado River Basin Water Supply and Demand Study - Moving Forward Effort

In May 2013, Reclamation and the Basin States, in collaboration with the several Colorado River Indian Tribes and conservation organizations, initiated the Moving Forward effort to build on future considerations and next steps identified in the Colorado River Basin Water Supply and Demand Study (Basin Study). The Moving Forward effort builds upon and enhances the broad, inclusive stakeholder process demonstrated in the Basin Study with an ultimate goal of identifying actionable steps to address projected water supply and demand imbalances that have broad-based support and provide a wide-range of benefits. ADWR was a member of the Coordination Team, the "Oversight Group", and the Environmental and Recreational Flows work group.

In May 2015, the Phase 1 Moving Forward Report was completed and documented the activities and outcomes of the workgroups during this phase. Based on insights from data collection, case studies, and exploring successes and challenges of existing programs, each workgroup identified future opportunities and potential actions to advance those opportunities within their particular areas of expertise. These opportunities look to increase or expand municipal and industrial water conservation and reuse, facilitate future agricultural water saving or productivity enhancements, and provide environmental and recreational benefits within the Colorado River Basin.

The opportunities and potential future actions could help improve the long-term sustainability of the Basin resources and improve the resiliency of regions dependent on Colorado River water. The opportunities were developed to reflect the areas of greatest potential benefit and could be implemented during future Moving Forward phases or by stakeholders under separate efforts.

Colorado River Basin Salinity Control Forum

ADWR represents the State of Arizona, along with the Arizona Department of Environmental Quality and Central Arizona Project on the Colorado River Basin Salinity Control Forum (Forum) (and its workgroup), and Advisory Council (and its technical workgroup). Representatives are appointed by the Governor. The Salinity Control Program is identified in the 1974 Colorado River Basin Salinity Control Act, Title II and is a mechanism by which the States themselves address the issue of salinity in the Colorado River outside of the purview of the Environmental Protection Agency. This program is important to Arizona because it reduces the salinity in the Colorado River, which is a major source of water for much of the state and these projects will reduce salinity impacts to the municipal, industrial, and agricultural sectors.

During Fiscal Year 2015, ADWR continued to participate as a cooperating agency in the Paradox Valley Salinity Control Unit Alternatives Environmental Impact Statement (EIS). The EIS is being prepared by Reclamation to evaluate options to replace the Paradox Valley Salinity Control Unit (Unit) deep injection well as a salinity control measure. This Unit currently removes about 100,000 tons of salt from the Colorado River system every year.

ADWR also participated in the Salinity Economic Damages Subcommittee of the Forum's Work Group to review and update the salinity economic damages model. This model estimates economic

damages due to various salinity levels in the Lower Colorado River Basin due municipal, residential, industrial, and agricultural and other sectors that use Colorado River water. The Salinity Control Forum uses the economic damage assessment to provide justification for continued Federal funding of the salinity control program.

Glen Canyon Dam Adaptive Management Program

ADWR is a Colorado River Basin States representative for the Glen Canyon Dam Adaptive Management Program (GCDAMP), established in 1997. The Grand Canyon Protection Act of 1992 and the 1996 Record of Decision provided a foundation to form this organization and develop a process for cooperative integration of dam operations. As a Basin State representative, ADWR serves as policy and technical advisors to represent the state of Arizona's interests. In Fiscal Year 2015, an ADWR representative was elected to chair the technical work group of the Adaptive Management Program for a second term.

Through Fiscal Year 2015, ADWR has been involved in the development of a Basin States' alternative associated with the preparation of an Environmental Impact Statement (EIS) that will provide a new framework for adaptive management of the Glen Canyon Dam and replace the 1996 Record of Decision. The Department of the Interior, through the Bureau of Reclamation and the National Park Service are preparing the EIS for the purposes of implementing a long-term experimental and management plan (LTEMP) for the operation of Glen Canyon Dam. ADWR has actively participated in LTEMP meetings to insure that the position of water users in the state is articulated and represented. It is anticipated that a public draft of the EIS will be available by December 2015.

The 2012 High Flow Experiment Protocol (HFE Protocol) finding of no significant impact for high-flow releases from Glen Canyon Dam is part of the ongoing implementation of the GCDAMP. In Fiscal year 2015, ADWR participated in a workshop with GCDAMP stakeholders and scientists to assess what has been learned two years into the HFE Protocol implementation. A report has been released as a result of this first re-evaluation point.

Lower Colorado River Multi-species Conservation Program

ADWR is an Arizona participant and is a member of the Lower Colorado River Multi-species Conservation Program (LCRMSCP) Steering Committee. The LCRMSCP is a program that allows us to comply with federal environmental laws while continuing to provide for water use and power generation. It is a partnership of federal and non-federal entities formed to meet the permitted provisions of the Endangered Species Act by restoring native habitat while accommodating current and future water and power development. The LCRMSCP will implement at least 8,132 acres of new habitat, and augment existing populations of razorback sucker and bonytail chub by 660,000 and 620,000 fish, respectively.

The LCRMSCP's most recent accomplishment reporting is through the federal Fiscal Year 2014. At that time, BOR reported a total of 2,939 acres of created conservation habitat, with approximately 239,700 razorback sucker and approximately 66,708 bonytail chub stocked in various reaches.

Other achievements within Fiscal Year 2015 include Steering Committee approval of Reclamation entering into a long-term lease with Freeport Minerals Corporation to secure 3,418 acres and 5,549 acre feet per year of water rights at Planet Ranch as part of the Big Sandy River – Planet Ranch Water Rights Settlement Agreement. The LCRMSCP celebrated the program’s 10th anniversary on April 7, 2015 in Yuma, Arizona. The anniversary event noted the first 10 years of accomplishments with remarks from Jennifer Gimbel, Assistant Secretary for Water and Science; Terry Fulp, Reclamation’s Lower Colorado Regional Director; and Larry Voyles, Director of the Arizona Game and Fish Department. The celebration also included the dedication of the newly created Laguna Division Conservation Area, a conservation area of over 1,110 acres downstream of Imperial Dam. This acreage will be included in the next year’s accomplishments, when all of the planting is completed.

Active Management Areas

Central Arizona Groundwater Replenishment District 2015 Plan of Operation – Stakeholder Process

In 1993, the legislature created a groundwater replenishment authority, commonly referred to as the Central Arizona Groundwater Replenishment District (CAGRD), to be operated by the Central Arizona Water Conservation District (CAWCD) throughout its three-county service area. The purpose of the CAGRD is to provide a mechanism for landowners and water providers to meet the criterion of showing consistency with the AMA management goal in demonstrating an assured water supply under the Assured Water Supply Rules, which became effective in 1995. The CAGRD acquires renewable supplies to replenish (or recharge) groundwater pumped by its members.

The CAGRD is required by statute to submit a plan of operation for approval by ADWR every ten years; a new CAGRD Plan of Operation (Plan) covering the period from 2015 through 2025 is required to be submitted to ADWR for review no later than January 1, 2015. The new Plan describes the activities that CAGRD proposes to undertake in the Phoenix, Pinal and Tucson Active Management Areas (AMAs) over the next 100 years to meet its replenishment obligations for existing and new members. During this fiscal year ADWR has attended a series of stakeholder meetings held by the CAGRD, and has provided information as needed. The 2015 Plan was submitted to ADWR by the CAGRD on December 29, 2014. ADWR held public hearings on the Plan in March and April 2015 and accepted public comment until April 8, 2015. ADWR will make a final determination of whether the 2015 Plan is consistent with achieving the management goal of the AMAs within 120 days of the close of the hearing record.

Engineering & Permits Division

Groundwater and Wells Program

Highlights for FY 2015 include:

- 294 renewal applications for Full-Time Well Driller License were mailed in advance of a June 30, 2015 expiration date. In compliance with A.R.S. § 41-1080, the applications included a requirement for proof of the applicant's lawful presence in the United States under Federal law.
- More than 2,420 notices of intent to drill and more than 464 notices of intent to abandon wells were processed
- More than 239 conveyances of groundwater rights due to changes in property ownership were processed.
- More than 275 new and renewal well driller licenses were issued and 17 drilling exams were administered.
- Nearly 386 well inspections statewide were conducted to verify minimum well construction standards and obtained other factual data in Maricopa County, Navajo County, Pinal County, Gila County, La Paz County, Yuma County, Mohave County, Yavapai County, Coconino County, Pima County, and Apache County.
- 223 applications to change ownership of authority of an Irrigation Grandfather Right which includes the Withdrawal Authority for Type 2 Non-Irrigation Grandfather Rights were processed.
- 3,268 change of well registration applications were processed

Surface Water Program

Highlights for FY 2015 include:

- Staff participated in a hearing regarding the contested applications to appropriate public water filed by Salt River Project for Reservoirs located on the Salt and Verde Rivers.
- Issued 14 public notices concerning application to appropriate public water, including claims for stockpond, instream flow maintenance and sever and transfers of water right were issued.
- 98 applications to appropriate public water, including claims of water right were processed.
- 46 permits or certificates of water rights were issued.

- 351 requests for assignments of surface water rights and claims due to changes in property ownership were processed.
- 19 field inspections and/or investigations in preparation for issuing certificates of water rights or addressing enforcement issues were conducted.
- 2 assessment reports filed in support of permits to appropriate water for instream flow maintenance were reviewed and processed.

Adjudication Support

Highlights for FY 2015 include:

Subflow Zone Delineation for the San Pedro River Watershed, Gila River Adjudication:

In April 2014, ADWR filed a Revised Subflow Zone Delineation Report for the San Pedro River Watershed, after which several parties filed objections. In February 2015, ADWR filed a supplement to its revised subflow report to address some of the objections. A four-day evidentiary hearing has been set for August 31, 2015 through September 3, 2015 to address ADWR's revised and supplemental subflow zone delineation reports and the objections that were filed. ADWR will testify and present evidence at this hearing.

In re Aravaipa Canyon Wilderness Area (ACWA), Gila River Adjudication:

The United States sought to stay this case and three others until the delineation of the subflow zone is determined by the Court and ADWR supplements the 1991 final hydrographic survey report for the San Pedro River watershed involving thousands of water users. In February 2014, the Court denied the United States' motion to stay. Also in February 2014, ADWR filed a report concerning the federal reserved water rights claims for the ACWA. Following a status conference held in November 2014, the Court set a twelve-day evidentiary hearing to consider two issues concerning the quantification of the claimed federal reserved water right. The hearing is scheduled to begin on July 13, 2015 and end on July 30, 2015. ADWR will testify and present evidence at this hearing.

In re San Pedro Riparian National Conservation Area (SPRNCA), Gila River Adjudication:

This is another case that the United States sought to stay until the delineation of the subflow zone is determined by the Court and ADWR supplements the 1991 final hydrographic survey report for the San Pedro River watershed involving thousands of water users. In February 2014, the Court denied the United States' motion to stay. In June 2015, after extensions of the discovery deadlines, the United States produced several thousand documents of electronically stored information. A status conference is scheduled for October 6, 2015.

In re Redfield Canyon Wilderness Area, Gila River Adjudication:

This is another case that the United States sought to stay until the delineation of the subflow zone is determined by the Court and ADWR supplements the 1991 final hydrographic survey report for the San Pedro River watershed involving thousands of water users. In February 2014, the Court denied the United States' motion to stay. In March 2015, the Court set briefing and discovery deadlines related to certain quantification issues, and scheduled the next status conference for April 7, 2016.

In re Fort Huachuca, Gila River Adjudication:

This is another case that the United States sought to stay until the delineation of the subflow zone is determined by the Court and ADWR supplements the 1991 final hydrographic survey report for the San Pedro River watershed involving thousands of water users. In February 2014 the Court denied the United States' motion to stay. In April 2015, the Court granted the parties' stipulated motion for an extension of the discovery deadline for the United States' production of electronically stored information. The Court set a telephonic status conference for April 19, 2016.

In re PWR 107 Claims, Gila River Adjudication:

In April 2008, a partial decree was entered in this case upon the stipulation of the parties regarding federal reserved water rights for fourteen springs on Bureau of Land Management land. Since that time, the United States and the San Carlos Apache Tribe have been discussing a possible settlement concerning sixteen springs that remain to be adjudicated in this contested case. The location of these springs is in dispute. Periodically, the parties have filed status reports. In the latest status report, filed in March 2015, the parties indicated that the prospects for a settlement agreement were good.

Final Hydrographic Survey Report for the Hopi Indian Reservation ("Final Hopi HSR"), LCR Adjudication:

In December 2008, ADWR issued a preliminary HSR in which ADWR reviewed and analyzed the water rights claimed by the Hopi Tribe and the United States on the Tribe's behalf for water use on the Hopi Indian Reservation. Thereafter, both the Hopi Tribe and the United States amended their water rights claims twice. The latest amendments were filed in June 2015. ADWR is reviewing these amendments and will be requesting additional information from the Tribe and the United States. As directed by the Court, ADWR is preparing a Final Hopi HSR which should be filed before the end of calendar year 2015.

Amended and Restated White Mountain Apache Tribe Water Rights Quantification Agreement ("WMAT Settlement Agreement"), Gila and LCR Adjudications:

In July 2014, ADWR filed its technical assessment of the WMAT Settlement Agreement, which settled water right claims filed for the White Mountain Apache Tribe reservation (located within both the Gila and the LCR Adjudications) as well as the water rights claimed by the settling parties. ADWR also provided the settling parties with updated claimant addresses by obtaining land ownership information from the County Assessors' offices so that the settling parties could provide notice of the settlement to those who had filed statements of claimant within the Gila and LCR adjudications. In December 2014, the Court dismissed objections to the settlement and signed a judgment and decree approving the WMAT Settlement Agreement in both the Gila River Adjudication and Little Colorado River Adjudication.

Dam Safety

Highlights for FY 2015 include:

- Inspection of 94 dams including 86 high hazard potential dams, 7 significant hazard dams, and 1 low hazard dam. Identified safety deficiencies requiring correction at 50 dams.

- Approval of construction permit for constructing a new dam owned by the City of Tempe at the Tempe Town Lake. The new dam will replace the existing rubber bladder dam. Providing regulatory oversight for construction at the Tempe Town Lake Dam project.
- Reviewing design documents for Phase II of the Magma FRS Rehabilitation Project. Construction on Phase I was completed.
- Reviewing design documents for a new dam (Smucker Park Dam) in the City of Yuma.
- Construction oversight inspections on the High hazard Clay Ave rebuild which was completed in late 2014; Leslie Canyon Pond Dam breach completed in March 2015. Amerind #8 Dam removed from jurisdiction due to constructed breach, and Tailings Water Reclaim Dam which was removed from jurisdiction.
- Identified four new jurisdictional dams located in Pinal County; Amarillo Valley Road, Maricopa Road Basin, Green Road Basin, and White Road Basin. Green Rd and White Rd. are classified as high hazard, unsafe due to active fissure adjacent to the dams; Amarillo Rd. is classified as significant hazard, and Maricopa Rd Basin is classified as low. The dams are owned by Pinal County.
- Reviewing the application to reduce Red Lake Tank Dam to non-jurisdictional status. Reviewing an application to rehabilitate the high hazard, unsafe Millet Swale Dam located in Navajo County.
- The high hazard, unsafe Home Tank dam was modified to non-jurisdictional status by the owner.
- Construction on the Buckeye Phase 1 completed.
- Pre-application reviews continued for multiple dams owned and operated by the Flood Control District of Maricopa County including White Tanks FRS No. 4, Buckeye Phase 2A, Cave Buttes Dam, and Powerline, Vineyard, and Rittenhouse structures.
- Assisted the City of Phoenix with reviews for the four jurisdictional dams at the 64th Street Facility.

Flood Warning

Highlights for FY 2015 include:

- Continued role as chair of the biannual Arizona Flood Warning System (AFWS) Multi-Agency Task Force (MATF) group meetings. The MATF includes staff from local, state and federal agencies involved in flood warning activities. The purpose of the meetings is to share flood warning information and to retain coordination among agencies.

- Repaired damaged ADWR-owned flood warning repeater at Red Mountain, which receives precipitation and streamflow data from areas south and east of Rio Rico.
- Performed routine maintenance of ADWR-owned flood warning gages located in Apache, Greenlee, Graham, Cochise, Santa Cruz and Yuma counties.

Floodplain Management

Highlights for FY 2015 include:

- Awarded \$154,500 federal cost-share from the U.S. Department of Homeland Security – FEMA in support of the Community Assistance Program for comprehensive assessments of community floodplain management programs.
- Continued to meet with the Arizona Department of Fire, Building and Life Safety – Office of Manufactured Housing about permitting for manufactured homes in Arizona. As coordinating agency for the National Flood Insurance Program, ADWR works to ensure agencies are aware of local, state and federal floodplain regulations.
- Conducted community assistance visits (CAVs), including field tours of recent development in the FEMA 100-year floodplain and face-to-face meetings with floodplain management and building permit staff for:
 - Casa Grande, Greenlee County, Mesa, Tempe, and Willcox.
- Closed 14 CAVs from the backlog of open CAV files for:
 - Buckeye, Bullhead City, El Mirage, Eloy, Mohave County, Parker, Payson, Town of Pima, Pima County, Sedona, Thatcher, Tolleson, Wickenburg and Winslow.
- Conducted a total of four floodplain management training workshops. The training workshops on the FEMA Elevation Certificate were presented in Prescott, Flagstaff and at the Arizona Registered Land Surveyors annual conference in Phoenix, and the Substantial Improvement and Substantial Damage training workshop was presented in Tucson. Local floodplain administrators, building officials, engineers and registered land surveyors attended.
- Conducted community assistance contacts (CACs), including brief meetings to help NFIP communities evaluate their floodplain management programs, and to offer training and other assistance for:
 - Bisbee, Florence, Lake Havasu City, Pinetop-Lakeside, Prescott Valley, Show Low, Willcox, and Williams.
- Completed floodplain reviews for Community Development Block Grant (CDBG) Applications, follow-up contact and review for open CAV Reports, and provided general technical assistance for:
 - Apache County, Apache Junction, Buckeye, Bullhead City, Casa Grande, Clifton, Cochise County, Coconino County, Cottonwood, Douglas, Duncan, Eagar, El

Mirage, Eloy, Flagstaff, Florence, Gila County, , Glendale, Globe, Goodyear, Graham County, Greenlee County, Holbrook, Jerome, La Paz County, City of Maricopa, Maricopa County, Mesa, Miami, Mohave County, Navajo County, Nogales, Oro Valley, Parker, Payson, Peoria, Phoenix, Pima County, Town of Pima, Pinal County, Pinetop-Lakeside, Prescott, Prescott Valley, Quartzsite, Queen Creek, Sahuarita, Santa Cruz County, Scottsdale, Sedona, Show Low, Snowflake, Springerville, St. John's, Taylor, Tempe, Thatcher, Tolleson, Tucson, Tusayan, Wickenburg, Willcox, Winslow and Yavapai County.

- Awarded \$120,000 federal grant from the U.S. Department of Homeland Security – FEMA in support of the Risk Mapping, Assessment, and Planning (Risk MAP) program intended to increase public awareness and reduce risk to life and property from flooding.
- Participated in a series of public meetings with community and county floodplain management staff and residents to present information related to new and future flood insurance rate maps. Meetings included:
 - Coconino County, Jerome, Maricopa County, Mohave County, Navajo County, Prescott, Winslow and Yavapai County.
- Attended numerous meetings with Apache Junction, Marana, Maricopa County, Pima County, Pinal County, Prescott Valley, and Tucson to discuss all hazards, including flooding, and to develop future projects within strategic watersheds.
- Participated in meetings and planning exercises pertaining to ADWR's role and involvement in the State Emergency Response and Recovery Plan (SERRP). The SERRP is coordinated by the AZ Division of Emergency Management (ADEM).

Hydrology Division

Publications and Reports

The Hydrology Division completed and published the following in FY 2015:

- Published Statewide Water Level Change Map Report Open File Report 13.
- Produced 57 new land subsidence maps. There are now a total of 314 maps available on ADWR's website.
- Published Land Subsidence Monitoring Report Number 2.
- Published San Simon Valley Sub-basin Groundwater Flow Model Report.
- Completed Draft Groundwater Monitoring Report on Buckeye Waterlogging Area.

Stakeholder Outreach

- Conducted seven presentations concerning ADWR's InSAR and land subsidence monitoring program at the following meetings, workshops, conferences:
 - Western States Water Council Remote Sensing Workshop;
 - Groundwater Resources Association of California Land Subsidence Symposium;
 - Arizona Hydrological Society Annual Symposium;
 - Western Governors Drought Forum;
 - Association of Engineering and Environmental Geologists National Conference;
 - NASA NISAR Applications Workshop;
 - American Geophysical Union Fall Meeting.

- Presentation at Arizona Hydrological Society (AHS) Symposium on the ADWR Prescott AMA Groundwater Flow Model and Advanced Aquifer Recharge Concepts.

- Presentation to AHS Symposium on ADWR 3rd Party Water Level Portal.

- Presentation to Tucson AHS Chapter on the ADWR Pinal AMA Groundwater Flow Model.

- Presentation to Cordes Lakes Homeowners Association on Groundwater Conditions in Cordes Lakes.

- Presentation at San Simon Valley Sub-basin INA Petition Public Hearing in Bowie concerning groundwater conditions in the San Simon Valley Sub-basin.

- Presentations on ADWR Santa Cruz AMA Groundwater Models to Groundwater Users Advisory Council and to participants in a 2-day field trip of SCAMA organized by ADWR modeling section.

Groundwater Modeling

The Groundwater Modeling Section worked on the following groundwater models and projects in FY 2015:

- Pinal AMA Groundwater Flow Model: The Pinal AMA Groundwater Flow Model and Report was completed in 2014. Future scenarios of projected groundwater conditions were generated based on the assumption of reduced Central Arizona Project water availability and increased municipal water demands. ADWR Staff presented the model results to the Pinal AMA GUAC and the Tucson Chapter of the Arizona Hydrological Society.

- Phoenix – Salt River Valley (PHX-SRV) Groundwater Flow Model: Completed pre-development Steady-State PHX-SRV groundwater model calibration, circa, 1900; the new model domain includes the existing SRV model plus the Hassayampa Sub-basin. Explored various calibration techniques including pilot points, SVD-assist and Tikhonov regularization techniques. Steady state solution(s) provide initial conditions for the transient calibration (1900-current), currently in development. Key features of the PHX-SRV model include the addition of simulation of flow in the unsaturated zone (UZP Package) important for transient

agricultural recharge, release of water from inter-bed storage (SUB-WT) and development of a multi-node well package.

- Prescott AMA Groundwater Flow Model: The Prescott AMA (PrAMA) Groundwater Flow Model and Report was completed in 2014. The PrAMA model was used to explore possible enhanced (natural) recharge concepts. ADWR Staff presented model-related information about local hydrology and possible enhanced recharge concepts at the 2014 Annual AHS Conference, and at PrAMA GUAC meetings in 2014 and 2015.
- Santa Cruz AMA Groundwater Flow Model: The “Micro-basins” Santa Cruz AMA Groundwater Flow Model calibration was updated to 2014; a technical memo was written documenting the calibration (Draft form). The Northern Santa Cruz Groundwater Flow Model calibration is currently being updated through 2014 and is expected to be completed in early fall of 2015. ADWR staff are also working on combining the Micro-basins and Northern-Santa Cruz Models; the combined model will also include the Potrero and Nogales Wash areas. ADWR Staff presented hydrologic and modeling overviews at Santa Cruz AMA GUAC meetings in both 2014 and 2015. ADWR staff organized a 2-day workshop-field trip in Nogales, Arizona.
- San Simon Valley Sub-basin Groundwater Flow Model: ADWR Modeling staff developed a regional groundwater flow model of the San Simon Sub-basin. The model was calibrated for the pre-development period (steady state initialization circa, 1915) and the transient period from 1915 to 2015. A 100-year projection was simulated from 2015 to 2115. A formal technical memo was written documenting model development and simulation results.
- Tucson AMA Groundwater Flow Model: ADWR Modeling staff provided technical assistance for the Tucson GUAC AMA / Safe Yield Task Force and 4MP development-purposes, as needed. Investigated parameters associated UZF package (AG recharge), and started planning for exploring TAMA model parameter sensitivities, alternative model conceptualizations, and investigating recharge distribution, for projective purposes.
- Buckeye Water Logging Area Study: Updating and expanding analysis of a previously unpublished report on the Buckeye Waterlogged Area (BWLA); currently the BWLA report is in draft form. When finalized, the BWLA will provide information (basic data and hydrologic analysis) regarding recommendations associated with (A.R.S.) § 45-411.01(F).
- Technical memo and groundwater modeling support for ADWR “Cone of Depression Test” brief to Adjudication Court.

Field Services

Basic Data Unit

- Measured approximately 1,700 water levels throughout the state at ADWR Index Well sites and at special network monitoring locations in the Coconino Plateau, Big Chino sub-basin, the Payson/Tonto basin area, Santa Cruz AMA, Show Low/Pine Top area, Cordes Lakes area and the Buckeye Water Logged area.

- Measured approximately 1,200 water levels at well sites in Willcox, Douglas and San Simon Groundwater Basins and Sub-basin.
- Water levels measured are input into ADWR's GWSI and made available to the public via GWSIWEB.
- Measured streamflow on the Santa Cruz River in SCAMA and in the Verde River headwaters area.
- Responded to dozens of domestic well owner requests to measure wells in Willcox area.

Geophysic/Survey Unit

- More than 2,600 square miles of land subsidence are occurring in Arizona (identified using InSAR data) and the GSU is monitoring more than 50,000 square miles with satellite based interferometric synthetic aperture radar (InSAR) data.
- Completed numerous GPS surveys for land subsidence monitoring in the McMullen Valley, Harquahala Valley, Willcox, and Douglas basins, Tucson AMA, Phoenix AMA, and San Simon sub-basin.
- Cooperated with the USGS in calculating water-in-storage estimates in the Willcox and Douglas groundwater basins.

Indian Settlement Negotiations

White Mountain Apache Tribe

Federal legislation approving and authorizing the White Mountain Apache Tribe Water Rights Quantification Agreement ("Agreement") was signed into law by the President on December 8, 2010. As provided in the legislation, in order for the Agreement to become enforceable, several actions must be completed by April 30, 2021, including approval of the Agreement by the Gila River Adjudication Court and the Little Colorado River Adjudication Court ("Adjudication Courts"). At the request of Adjudication Courts, ADWR filed a report on July 25, 2014 entitled "Technical Assessment of the White Mountain Apache Tribe Water Rights Quantification Agreement." This report included the Department's analyses of the Agreement. On December 18, 2014, the Adjudication Courts entered judgments approving the Agreement. It is expected that the Agreement will become enforceable within the next one to two years.

Hualapai Tribe

The Bill Williams River Water Rights Settlement Act of 2014 ("Act") was passed by Congress on December 2, 2014 and signed into law by the President on December 16, 2014. The Act approves and authorizes two water rights settlements ("Settlements") between various water users in the Bill Williams River watershed, including the Hualapai Tribe. ADWR participated in the settlement negotiations and is a party to one of the Settlements in a limited capacity. On September 19, 2014,

ADWR Director Tom Buschatzke appeared before the House subcommittee on Water and Power and testified on behalf of the State of Arizona in support of passage of the Act.

With respect to the Hualapai Tribe, the Settlements settle the Tribe's water rights claims in the Bill Williams River Watershed, south of the Tribe's main reservation, with the United States and Freeport Minerals Corporation ("Freeport"). Although the Settlements do not settle the Tribe's water rights claims for its main reservation, they contain provisions intended to facilitate a later settlement of those claims. Under one of the provisions, Freeport will make a financial contribution that will be used by the Tribe to purchase Colorado River water rights that may be used to provide water for the Tribes' main reservation as part of a future settlement of the Tribe's water rights claims for the reservation, or beginning December 31, 2039, whichever occurs first.

In addition to settling the Tribe's water rights claims in the Bill Williams River Watershed and facilitating a future settlement of the Tribe's water rights claims for its main reservation, the Settlements also provide a benefit to the Lower Colorado River Multi-Species Conservation Program ("MSCP"). Under the Settlements, Freeport will lease land and water rights within Planet Ranch to the United States Bureau of Reclamation ("USBR") for 50 years for the purpose of creating and maintaining habitat for fish and wildlife as part of the MSCP. Freeport will then donate the land and water rights to the Arizona Game and Fish Department, subject to the lease to USBR. The MSCP ensures Arizona's continued use of water and power from the Lower Colorado River by providing compliance with the Endangered Species Act.

The Act provides that the Settlements will become enforceable only if certain conditions are satisfied by a date specified in the Act. That date is December 15, 2015, or an extended date agreed to by the Hualapai Tribe, the United States and Freeport. One of the conditions that must be satisfied in order for the Settlements to become enforceable is that all objections to certain applications filed by Freeport to sever and transfer water rights away from lands within Planet Ranch must either be conditionally withdrawn or resolved in a decision issued by ADWR that is final and non-appealable. Currently, Mohave County's objections to the applications have not been resolved. Mohave County appealed ADWR's decision denying its objections, and that appeal is being litigated in court.

Tonto Apache Tribe

During the past year, ADWR has been involved in negotiations with the Tonto Apache Tribe, the United States and certain state parties for a settlement of the water rights claims of the Tribe. Those negotiations are on-going and confidential.

CRITICAL CHALLENGES/OPPORTUNITIES

Issue 1: Protecting Arizona's Entitlement of Colorado River Water

Over fifteen years of drought has put Arizona's Colorado River supplies at risk, garnering local and national media attention. In response, ADWR has been actively participating in discussions regarding a drought contingency and sustainability plan with the federal government and the Colorado River Basin States. An Arizona-only action plan is also being developed. ADWR has reached out to a broad sample of Colorado River water users in the State to discuss voluntary actions that could be part of the plan. Remedies are being explored to address projected future water supply and demand imbalances and the long-term resiliency of the Colorado River system. Arizona will continue to take proactive steps to address the risk of Colorado River shortages and improve the health of the river system by working in collaboration with the Colorado River Basin States, federal government, Mexico and local and regional partners. We must continue to be vigilant as we work with the federal government to address the issues related to the Colorado River.

Issue 2: Responding to Water Issues in Southeast Arizona

San Simon Valley Sub-basin - The Initiation of Procedures to Designate an Irrigation Non-Expansion Area

In February 2015, ADWR received a petition for the Initiation of Procedures to Designate an Irrigation Non-Expansion Area (INA) for the San Simon Valley Sub-basin. Pursuant to statute, the Director can designate a Subsequent INA if specific criteria have been met. ADWR determined that the petition met the statutory signature requirements, and published a Notice of Initiation of Designation Procedures and Notice of Public Hearing on March 18, 2015. As of this date, a temporary prohibition on the irrigation of new acres within the proposed INA became effective. This temporary prohibition remains in effect until the Director of ADWR makes a final determination on the proposed INA.

A public hearing concerning whether to designate an INA within the San Simon Valley Sub-basin was held at the Bowie High School in Bowie, Arizona, on May 16, 2015. Written comments and evidence submitted to the Department are due on July 17, 2015; within 30 days after the close of the public hearing period, the Director of ADWR will issue findings regarding the matters considered during the hearing. If the Director decides to designate an INA, he will issue an order of designation. If the Director designates an INA, the prohibition on irrigation of new acres within the San Simon Valley Sub-basin (with certain limited exceptions) would remain in effect permanently. If the Director decides not to designate an INA, the prohibition on the irrigation of new acres within the sub-basin will be lifted.

Willcox - Working with Local Water Users to Develop Water Management Solutions for the Area

During the summer of 2014, ADWR began to receive concerns about declining water levels in private residential wells and in some cases, reports of wells going dry, in southeast Arizona. As a result of declining groundwater levels, some individuals and representatives of groundwater users have expressed interest in developing water management practices for the area with the hopes of slowing the water level declines.

In September 2014, the Arizona Department of Water Resources (ADWR) began working with water users in the Willcox Basin on potential water management strategies to benefit all water users in the area. While the most populated areas of the state are subject to stringent groundwater management, have mandatory water conservation requirements and have access to diverse water supply portfolios, most of rural Arizona relies exclusively on groundwater as its primary water source and lacks comprehensive groundwater management regulation.

Currently, the two water management tools available to directly manage groundwater withdrawal and use are Active Management Areas (AMAs) and Irrigation Non-Expansion Areas (INAs). Groundwater withdrawn from inside of an AMA can be subject to withdrawal fees, metering, annual reporting, conservation requirements, and other provisions, while groundwater withdrawn from inside of an INA can be subject to metering and reporting. The process to establish a new AMA or INA can be initiated by the local community; however, at this time ADWR does not believe that either of these tools would be the best solution for the Willcox Basin.

ADWR staff has been meeting with local water users to discuss water management strategies for the area. ADWR plans to continue engaging in these meetings until an effective groundwater management approach for the area has been developed.

Issue 3: Closing the Projected Supply and Demand Imbalance

Recent studies have identified the potential for a long-term imbalance between available water supplies and projected water demands over the next 100 years if no action is taken. Over the next 25 to 100 years, Arizona will need to identify and develop additional water supplies to meet projected growing water demands. While there may be viable local water supplies that have not yet been developed, water supply acquisition and importation will be required for some areas of the State to realize their full growth potential.

Issue 4: Continuation of Groundwater Management in the Five Active Management Areas - Development of the Fourth Management Plan

The Groundwater Code establishes management goals for each of the AMAs. For the Prescott, Phoenix, and Tucson AMAs, the goal is to reach safe-yield by the year 2025. Safe-yield is achieved when no more groundwater is withdrawn from the aquifer than is annually replaced. The consequence of not achieving safe-yield will be to threaten the long-term availability of water supplies for existing homes, industries and communities in AMAs. The Pinal AMA management goal is to allow development of non-irrigation uses and to preserve existing agricultural economies for as long as feasible, consistent with the necessity to preserve future water supplies for non-irrigation uses. The Santa Cruz AMA management goal is to maintain a safe-yield condition in the AMA and the additional requirement to prevent local water tables from experiencing long-term declines.

One tool to assist the AMAs to achieve their goal is the adoption of a series of five groundwater management plans to be implemented in sequence from 1980 through 2025. During this fiscal year, ADWR continued with the development process of the Fourth Management Plans (4MPs). As part of that development, ADWR completed Assessments of the current conditions of each of the five AMAs. This information, along with stakeholder input, will provide the framework for the development of the 4MPs.

Previous management plans have focused more on specific conservation requirements for individual water using sectors. In the 4MPs, ADWR plans to identify factors that may be impediments toward each AMA reaching its management goal, and identify possible solutions to overcoming those impediments. The 4MPs will be viewed more as Plans for success, rather than documents that simply identify the statutory requirements for the primary water-using sectors. In these Plans, ADWR in cooperation with regulated communities and the public will build on past successes but recognize that additional observations should be considered, including:

1. Conservation will only get the AMA so far. ADWR will continue to address meaningful conservation requirements, but also will review the “incentives” for utilization of renewable water supplies, reduce the complexity and the administrative workload necessary to implement these programs, and be diligent in their enforcement.
2. Continue discussions regarding the AMA goals and the implications to the State of not reaching them.
3. Consider different approaches to water management among the AMAs, recognizing local conditions, economic, and community values.
4. Address the limitations of the Management Plans and underlying authorities as each AMA’s future course of action is determined.
5. Recognize sub-area issues within AMAs and consider alternative management strategies to address areas where groundwater conditions are positive and where conditions are negative.
6. Develop, in cooperation with local water users and other water resource entities (CAWCD, AWBA, CAGR, etc.), a long-term water management strategy, tailored to each AMA, identifying specific actions and resources that will be required to accomplish this strategy.

Each AMA's Groundwater User Advisory Council (GUAC) has been the forum in which the public can participate to obtain information and submit comments on the 4MPs. During this past year, ADWR has hosted several GUAC meetings in the Prescott, Phoenix, Pinal, Tucson, and Santa Cruz AMAs to discuss the direction of the Plan. ADWR has solicited input from not only the GUAC members but also the water users and stakeholders within each of the AMAs. ADWR promulgated the Prescott AMA 4MP and moved toward promulgation of the Tucson AMA 4MP this year, with the remaining AMA 4MPs to follow.

Phoenix AMA

The Phoenix AMA is currently in safe-yield, which is a significant achievement in the largest populated section in the state. In addition to reducing groundwater pumping, communities and individuals have made substantial investments in the utilization of renewable water supplies in this AMA, both directly and through recharge and recovery, water banking, water recycling, and utilization of renewable water supplies. ADWR and its regulated community have made significant strides in ensuring there are sufficient supplies for future development and in providing back-up supplies for times when surface water supplies are limited. Review of the Phoenix AMA Assessment indicates that the challenge is to maintain safe-yield in this AMA. Facilitating the delivery of renewable water supplies into areas where historic groundwater declines have occurred will be an important focus of ADWR's efforts in this basin and will assist in ensuring that current and future citizens will have a long-term assured water supply.

Tucson AMA

The Tucson AMA has been a model for the efficient use of water supplies, which is important in light of limited availability and direct utilization of renewable supplies. While the recycling of water is an important element of the Tucson AMA nearly achieving safe-yield, more can be done to increase the use of renewable water supplies both for direct uses and recharge and recovery efforts. The focus of ADWR's efforts in this AMA will be to proffer and enact policies that increase the direct use of Central Arizona Project water and recycled water. This will be the key to achieving and maintaining safe-yield in this AMA.

Pinal AMA

The management goal of the Pinal AMA is unique, as there is recognition of the importance of agriculture to the economy of this region. However, the need to preserve water for current and future non-agricultural uses is also recognized in the goal.

In 2007, a major effort was culminated to recognize the need to preserve water supplies for future municipal and industrial uses in the modifications to the Pinal AMA Assured Water Supply Rules. These modifications were a community-driven effort of local water leaders, supported by the findings of the Governor's Water Management Commission and the Third Management Plan water budget and analysis. A key provision of this rule change, involving a gradual reduction in the issuance of credits that may be used to pump groundwater without the requirement to offset with renewable supplies, was to take effect in 2014. Local farming and business interests had concerns regarding the reduction in credit issuance, and regularly met during this fiscal year to explore methods of restructuring the AWS rule to address these concerns. ADWR worked with local leaders and stakeholders to provide information regarding the AWS rules, which were amended during this fiscal

year for the Pinal AMA to delay the first reduction in the allocation factor used to calculate extinguishment credits for the extinguishment of grandfathered groundwater rights in the AMA. An extinguishment credit is an allowance for an AWS determination to pump additional groundwater based on retirement of an existing grandfathered groundwater right in the AMA.

Future efforts should be focused on ensuring there are continued opportunities for the direct use of renewable water supplies in the agricultural sector as well as securing additional renewable water supplies for future municipal and industrial development.

Santa Cruz AMA

The Santa Cruz AMA was split from the Tucson AMA in 1994 in recognition of its unique hydrology and the importance of the Santa Cruz River to the economy of the AMA. The management goal of this AMA is to maintain its current safe-yield status and protect the local water levels within its boundaries. With possible significant residential development in this area, and without Assured Water Supply Rules that reflect its unique goal, the ability to achieve this management goal will be in jeopardy. The Fourth Management Plan for this AMA will be focused on developing mechanisms such as recharge of underutilized reclaimed water and well spacing requirements that leverage locally available resources and reflect the goal of protecting existing water levels.

Prescott AMA

The Prescott AMA was declared to be out of safe-yield by ADWR in 1999. The management goal is for this AMA, as in the Phoenix and Tucson AMAs, is to achieve and maintain safe-yield by 2025. The availability of renewable water supplies is limited in this AMA, although opportunities do exist for the use of renewable water supplies and reclaimed water through aquifer augmentation, direct delivery or through recharge and recovery. The proliferation of exempt wells in this AMA is also a challenge to maintaining the availability of groundwater supplies. The importation of water from the Big Chino sub-basin of the Verde River groundwater basin is a tool provided in statute to assist this AMA in achieving its management goal.

In July of 2014, the Director of ADWR entered an order adopting the Fourth Management Plan (4MP) for the Prescott AMA. The 4MP contains mandatory conservation, monitoring, and reporting requirements for certain persons withdrawing, distributing, or receiving groundwater within the Prescott Active Management Area (PRAMA). These requirements which are set forth in the Agricultural Conservation Program, the Municipal Conservation Program, and the Industrial Conservation Program of the plan, are designed to achieve reductions in withdrawals of groundwater within the PRAMA. The Fourth Management Plan also includes a Groundwater Quality Management Program, an Augmentation and Recharge Program, a Water Management Assistance Program, an introductory chapter and chapters discussing water resources, water use characteristics, groundwater quality, plan implementation, water budgets and projections, and water management strategy. The Order of Adoption became final on September 27, 2014, at which time staff undertook the work necessary to create and send the Notices of Conservation Requirements to all affected persons by October of 2015. The conservation requirements will become effective January 1, 2018.

Issue 5: Expediting the Completion of the General Stream Adjudications for the Gila and Little Colorado River Systems and Sources

The on-going Gila and Little Colorado general stream adjudications will determine priorities and quantities of 100,000 water rights for 35,000 state and federal claimants. The Court and parties agree that steps need to be taken to expedite and complete this process, including changes made to the adjudication procedures and substantial funding support for ADWR's statutorily mandated technical work. Efficient and prompt completion of these adjudications will provide certainty of water supply availability allowing for identification of the strategies necessary for meeting projected future water demands, particularly during times of drought; and, importantly, ensure state court rather than federal court jurisdiction.