

State of Arizona

DEPARTMENT OF WATER  
RESOURCES ANNUAL REPORT



FY 2012



## **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 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.

### 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, and Tucson AMAs, the management goal is to achieve safe-yield by the year 2025. Safe-yield is accomplished when no more groundwater is being withdrawn than is being replaced annually.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. The goal of the Santa Cruz AMA is to maintain its current safe-yield status and 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.

### *Management Plans*

Management plans reflect the evolution of regulation under the Groundwater Code, assisting in moving each AMA toward their long-term water management goals. Through the Management Plans, ADWR establishes conservation goals for each water use sector; agriculture, municipal (includes cities, towns, and private water companies by statute), and industrial (mining, golf course, electric power generation, dairies, and feedlots). Examples of these conservation goals include the regulatory programs for municipal providers. Currently, there are seventy-four large municipal providers in AMAs regulated under the programs described below. A large municipal provider is a city, town, private water company or irrigation district that serves more than 250 acre-feet of water per year. There are also three institutional providers and thirteen large untreated providers. (Large untreated providers serve more than 100 acre-feet of water per year.)

- Gallons per-Capita per Day (GPCD) - base program established in the Groundwater Code and first implemented in the First Management Plan which became effective in 1987. Fifteen large municipal providers are in this program, where providers are assigned an annual total gallons per capita per day allotment.
- Modified Non-Per Capita Conservation Program (MNPCCP) - established in 2008. Fifty-five municipal providers began regulation under the MNPCCP in January 2010. This program is mandatory for all large municipal water providers in AMAs that do not have a Designation of Assured Water Supply and is optional for providers with a Designation of Assured Water Supply. The MNPCCP requires participating providers to adopt a basic public education program and choose one or more additional water conservation Best Management Practices (BMPs) based on its size.
- Non-Per Capita Conservation Program (NPCCP) - established in 1992. Three providers are regulated under the NPCCP. This program requires municipal providers to implement an education program and conservation programs, and reduce groundwater pumping.
- Alternative Conservation Program (ACP) - One provider is regulated under the ACP, which is a blend of the GPCD and NPCCP.
- Institutional Provider Program (IPP) - This program was first established in the Second Management Plan and was continued into the Third Management Plan. It is designed for large institutional facilities such as prisons, military installations, schools and airports that have greater than 90% of their water deliveries for non-residential purposes. There are two institutional providers in the Pinal AMA and one in the Tucson AMA.
- Large Untreated Providers (LUP) - Large Untreated Providers provide non-potable water for landscape irrigation to at least 500 people or at least 100 acre-feet of water. Although eleven irrigation districts are large untreated providers in

the Phoenix AMA and one district is a large untreated provider in Pinal AMA, there are also nine municipal water providers in the Phoenix AMA and one municipal provider in Pinal AMA that are untreated providers.

#### *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 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 the availability of water for the property, but 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 discussed later in this report. Requirements under these programs serve to protect consumers from the sale of subdivided land that lacks an available long-term source of water.

#### *Recharge Program*

The Recharge Program allows injection or infiltration of surface water 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 technical studies of specific areas, some conducted through contractual agreements with the Bureau of Reclamation and the United States Geological Survey. In this past fiscal year, ADWR staff participated extensively in the Water Resources Development Commission (Commission). The goal of the Commission was projection of water demands statewide for the next 25, 50 and 100 years and to identify supplies to meet those demands. ADWR staff participated on the following working committees: Water Supply and Demand, Finance and Legislative Recommendations. ADWR staff also prepared the final report of the Commission.

#### *Rural Water Initiative*

ADWR actively participates in, or facilitates, 13 Rural Watershed Groups that represent water interests outside of the AMAs. ADWR provides technical and policy advice and assistance to these groups throughout the year. In some cases, ADWR attends multiple meetings per month with these groups. The activities of the different Rural Watershed Groups vary greatly from group to group. In areas such as the Upper San Pedro (Sierra

Vista area), Coconino Plateau (Flagstaff and surrounding areas), Verde River (Cottonwood to Camp Verde), Yuma, Bullhead City and Lake Havasu City, significant water resources planning and development is either proposed or underway to meet the water supply needs of the area. Through the efforts of these Rural Watershed Groups, within the last five years, substantial changes in water law and programs have been made. ADWR has a Special Line Item Appropriation that is used to fund personnel and water resources investigations to assist the communities with long-term planning and management programs.

### Colorado River Management

The Colorado River is also a very important resource to the State of Arizona, serving seven states, 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 Permitting Division

ADWR's Engineering and Permitting activities are focused in three areas: Water Rights Permits, Adjudications, and Dam Safety and Flood Mitigation. This division issues water use and well drilling permits; manages flood hazards by supervising the safety of dams and supporting local flood control efforts; and provides administrative and technical assistance to the Superior Court and Special Master in the general stream adjudications.

#### *Adjudications*

The State of Arizona is conducting general stream adjudications of water rights in two major portions of the state: the Gila and Little Colorado River systems and their tributaries. Adjudications are judicial proceedings conducted in the 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. This includes surface water permits and claims to surface water based upon both state and federal law. ADWR's role in the process is to provide both administrative and technical assistance to the State Superior Court.

#### *Dam Safety and Flood Mitigation*

ADWR is the sole agency responsible for the supervision of non-federal dams to reduce potential loss of life and damage to property; the management of the statewide flood warning system; assisting communities that participate in the National Flood Insurance Program; and establishing State Standards for Floodplain Management.

## Water Rights Administration

### *Groundwater*

In AMAs, groundwater pumping from non-exempt wells requires a groundwater right or withdrawal authority from ADWR. State law assesses withdrawal fees<sup>1</sup> and requires annual groundwater withdrawal and use reports to be filed for pumping from non-exempt wells within AMAs. Exempt wells<sup>2</sup> 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.

### *Surface Water*

Surface water is subject to the "doctrine of prior appropriation," meaning that the first person to put the water to beneficial and reasonable use has a right superior to later appropriations. Rights to use surface water are designated through a permitting process at ADWR. Surface water permits may be used to support claims in the adjudication process. ADWR maintains records related to water rights in both computer and physical files, which are available to the public.

## Hydrology Support

ADWR hydrologists serve as the technical arm of 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. 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 satellite technology to obtain water level measurements in areas of the state where groundwater information is lacking.

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

<sup>2</sup> Wells having a maximum pumping capacity of 35 gallons per minute or less.

## BUDGET

The total ADWR State appropriation for FY 2012-2013 is \$12,440,500. This appropriation is restricted to special line items as follows:

Operating lump sum appropriation	\$7,487,100
Adjudication support	1,212,900
Assured and adequate water supply administration	1,783,800
Rural water studies	1,146,000
Conservation and drought program	398,700
Automated groundwater monitoring	401,900
<b>TOTAL:</b>	<b>\$12,363,800</b>

On May 7, 2012, Governor Brewer signed Senate Bill 1532, also known as the Environment Budget Reconciliation Bill of 2012, pursuant to Section 8 of S.B. 1532, A.R.S. § 45-118 will be repealed effective August 2, 2012. Because of the repeal of A.R.S. § 45-118, municipalities will no longer be required to pay a municipality fee to ADWR during fiscal year 2012-2013. Therefore, for fiscal year 2013 ADWR was given an additional \$6.3 million appropriation from the General Fund (a total of \$11,988,300 general fund appropriation) to replace the amount that would have been collected from municipalities if the Municipality Fee had not been repealed.

<u>Fiscal Year</u>	<u>Total Appropriation</u>	<u>Actual FTEs</u>
2005-2006	\$18,796,600	227
2006-2007	\$20,789,700	239
2007-2008	\$22,763,100	236
2008-2009	\$21,401,600 <sup>3</sup>	235
2009-2010	\$16,879,800	157
2010-2011	\$7,360,300	97
2011-2012	\$12,363,800	100
2012-2013	\$12,400,500	125

## ACCOMPLISHMENTS IN FY 2011-2012

### Agency Wide

#### *Providing the Public with access to Online Data (www.azwater.gov)*

Over the last year, ADWR has continued its commitment to providing the public with convenient on-line access to its data and files. This initiative provides the public 24-hour access to ADWR's "live" data and also provides them with an alternative to having to contact ADWR staff. The majority of ADWR's files, including applications that are submitted, are available for public viewing through our online Imaged Records System.



This year ADWR has begun upgrading the Imaged Records System to a Xerox DocuShare site. ADWR has over 300,000 imaged records files available on the Imaged Records System. This upgrade will allow users to access files more easily and will provide additional parameters when searching for files. This new database will be supported by all operating systems and web browsers, which our current database is not. Currently, Wells 55 files and 2011 Annual Water Use Reports are available to view via the DocuShare site.

New tools made available:

- **ADWR Live Queries and Reports:** These new queries and reports will provide the public instantaneous access to Groundwater Rights, Surface Water Rights, and Adjudication Statement of Claimants data. The queries and reports are meant to provide the most common type of information requested by the public. Many of these queries and reports are the most requested reports that ADWR staff has been running for the public for several years. The ADWR Live Queries and Reports tool will save the public time and make this information available regardless of ADWR staff availability. The queries can be executed using a variety of parameters (e.g., owner name, location, type of right, right number, by basin), and once executed, the data can be exported to an Excel or PDF file.
- **Irrigation Grandfathered Right (IGR) Flexibility Credit Balances and Credits Available for Sale Report:** This report lists, by district or sub-basin, the “live” credit balances for the most recent credit year and the credits available for sale during the current year. This new report allows the information to remain current, and therefore allows irrigation district managers and farmers to, look up their current balances and also search for IGRs that have credits available for sale.
- **Community Water System (CWS) Updates On-line Tool:** The Department has made available an on-line tool to allow CWS to update their system plans on-line. The System Updates are due every five years and include a section for a supply plan, a drought plan, and a conservation plan. Once reports are submitted using this tool, the user receives a confirmation receipt that includes all of the data they entered for their records.

Existing On-line web tools available include:

- **Groundwater Site Inventory (GWSI) -** This application can be used to find groundwater levels, accurate well locations and to view hydrographs.
- **Well Registry Web (Wells 55) -** This application can be used to find well registry numbers, owner information, associated water rights, and pumping data.
- **Assured and Adequate Water Supply Mapping Tool –** This interactive tool can be used to obtain data relating to the Assured and Adequate Water Supply Program and to determine existing and approved demand volumes throughout the State.
- **Online Annual Reporting Tool –** This tool allows Annual Water Withdrawal Use Reports to be filed on-line for AMA Reports, Community Water System Reports, and Designation of Adequate Water Supply Reports.

- Public Notice of Recharge Applications in Progress – As applications are submitted to the Recharge Program, they are posted ADWR’s website for public review.

#### *Water Resources Development Commission*

In October of 2011 the Water Resources Development Commission (WRDC) submitted their final report to the Governor, Speaker of the House, the Senate President and the Secretary of State. Due to the time constraints associated with the issues being discussed, the WRDC was not able to fully consider all of the issues that were presented by the five working groups, therefore, the WRDC recommended that they be given until September 30, 2012, (the sunset date) to continue the development, evaluation and prioritization of potential solutions or legislative proposals.

The WRDC was formed by HB 2661 (2010) for the purpose of assessing the current and future water needs of Arizona with greater focus on meeting the water needs in rural Arizona. Commission members were selected to represent statewide water users and water use sectors.

The WRDC has been 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.

To achieve its objectives, the WRDC formed five committees: Population; Water Supply and Demand; Environmental; Finance; and Recommendations. The committees met numerous times and committee agendas, meeting summaries, presentations and other work products can be accessed through the ADWR web site.

#### Water Management Division

##### *AMA Water Use Demand and Supply Assessments*

The Tucson, Prescott, Phoenix and Santa Cruz AMAs Draft Demand and Supply Assessments *Templates* (the demand and supply numbers) have been updated through 2009 for Phoenix and through 2020 for Tucson, Prescott and Santa Cruz AMAs. The Assessments *Documents* (the reports based on the demand and supply numbers) are a compilation and study of the historical water demand and supply characteristics in each of the AMAs beginning from the year 1985. Each Assessment also includes several water supply and demand projection scenarios to the year 2025, including scenarios with reductions in surface water due to potential climate change. The Assessment for the Santa Cruz AMA is scheduled for completion in July of 2012. These Assessments are precursors for the development of the Fourth Management Plans for the AMAs.

### *Drought Program and Conservation Outreach*

ADWR continues to post the monthly and quarterly drought status updates, facilitate the biannual Governor's Drought Interagency Coordinating meetings and initiate the Governor's request for the U.S. Department of Agriculture (U.S.D.A) disaster designations. At both the November 10, 2011 and May 10, 2012 biannual meetings, it was recommended that the Arizona's Drought Emergency Declaration (PCA 99006) and Drought Declaration for the State of Arizona (Executive Order 2007-10) remain in place. On August 16, 2011, the U.S.D.A. assigned five counties as primary natural disaster areas due to losses caused by drought, wildfires, and high winds, and on April 4, 2012, six additional counties were designated as primary natural disaster areas. ADWR will continue to work closely with the Governor's Office to provide updates of drought conditions, and assist in the execution of additional Executive Orders as conditions warrant.

In early 2012, an online reporting tool was developed for the five-year updates to community water system drought plans, and a section was added to the drought update form so that community water systems could request information on regional hydrological and meteorological conditions to help them with drought planning. ADWR and the Arizona Municipal Water Users Association added a section on drought to the 2012 Water Awareness Month website, an interactive calendar that provides resources, tips, activities and events about numerous water conservation topics. Planning is underway to expand Water Awareness Month to a year-round campaign.

### *Director's Modification of Groundwater Savings Facility Permits*

In August 2011, certain Groundwater Savings Facility (GSF) operators in the Pinal and Phoenix (AMAs) requested the need for additional groundwater supplies due to an increase in irrigation water demand that was greater than originally anticipated. The increase in irrigation water demand was primarily due to an unanticipated late frost in the crop growing season.

Four GSF operators requested that the Director of the Department invoke a provision in their facility plan of operation that would allow for an increase in groundwater pumping in excess of the GSF's annual permitted volume. The maximum permitted volume incorporates both groundwater plus allowable in-lieu Central Arizona Project (CAP) water usage. The provision allows for the accrual of storage credits for the in-lieu CAP water if the GSF operators demonstrate to that the cost of producing groundwater equal to the excess is less than the cost of any alternative source of surface water.

The four GSF operators who requested a Director's Modification of their permits are; the Central Arizona Irrigation and Drainage District (CAIDD), Maricopa-Stanfield Irrigation and Drainage District (MSIDD), New Magma Irrigation and Drainage District (NMIDD) and Hohokam Irrigation and Drainage District (HIDD). As of the date of this report, ADWR has issued a modified permit to CAIDD, anticipates mailing modifications to MSIDD and NMIDD in July 2012 and recently received notice that HIDD's request will be submitted shortly.

### Engineering and Permitting Division

#### Flood Hazard Management

The mission of the flood hazard management programs is reduction of risk to life and property from flooding by regulating safety of non-federal dams, providing support and assistance to local and state agencies with responsibilities for flood control and emergency management, and coordinating with local, state, and federal agencies during times of flood emergencies.

#### *Dam Safety*

The Dam Safety Program supervises the safety of all nonfederal 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.

- Awarded a \$66,000 federal grant from the U.S. Department of Homeland Security – FEMA in support of the State Dam Safety Program.
- Staff inspected 155 dams including: 82 with high potential downstream consequences in the unlikely event of failure, including probable loss of life; 17 with significant potential downstream economic consequences; and 56 dams with relatively low potential economic losses.
- Staff identified safety deficiencies requiring correction at 52 dams with either high or significant potential downstream consequences.
- ADWR approved construction permit for removal of Pan Dam in Yavapai County owned by Burlington Northern Santa Fe Railroad. The dam was constructed in 1897 and no longer served a useful purpose.
- ADWR approved permits for concrete repairs to four dams owned by the City of Prescott for municipal water supplies, including Upper and Lower Goldwater Dams and Willow Creek and Granite Creek Dams.
- Staff supervised construction activities at eleven dams statewide including: Magma Dam, White Tanks Nos. 3 & 4 Dams, Park Avenue Detention Dam for flood control in Pinal County, Maricopa and Pima Counties respectively; Palo Verde Pond No. 3, Plains LPG Brine, Phoenix South Mountain Reservoir, and Tempe Town Lake Dams operated in Maricopa County; AGFD-owned Black Canyon Dam in Navajo County; BHP Copper’s Gold Gulch No. 1A Dam in Gila County; and Pan Dam in Coconino County.
- Staff participated in a “tabletop” exercise of dam safety emergency action planning for flood control dams in Maricopa County. The tabletop exercise provided an opportunity for the dam owner, state and local emergency management officials to evaluate current plans and procedures and identify and resolve any issues of coordination and responsibilities.

- ADWR successfully performed responsibilities of an agreement with the Flood Control District of Maricopa County for partnering on District dam safety rehabilitation projects. The District indicated by letter they are “*pleased at the success of this agreement over the last two years in the review and other services provided by ADWR under the terms of the agreement, which have resulted in direct benefits to the District’s dam rehabilitation and modification program efforts and activities.*” ADWR receives \$96,000 annually in support of the dam safety program from the agreement which is being extended to a third year.

### *Flood Warning*

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 ([www.afws.org](http://www.afws.org)).

- Awarded \$115,000 federal cost-share from the U.S. Army Corps of Engineers in support of the Arizona Statewide Flood Warning System Data Access and Network Optimization and Management Planning Study - Phase II. The project purpose is to develop a plan to increase the accessibility, accuracy, reliability and long-term management of real time data available through the system.
- Awarded a \$10,000 federal grant from the U.S. Department of Interior – Bureau in support of the Arizona Statewide Flood Warning System.
- Following the summer 2011 wildfire season, aided National Weather Service in issuance of timely and accurate flood warnings to local communities by providing free equipment and installation of 10 rain gages and a radio repeater in the Wallow Fire burn area in Apache County (4 gages and a repeater), Monument Fire in Cochise County (2 gages), Horseshoe 2 Fire in Cochise County (2 gages) and Murphy-Complex Fire in Santa Cruz County (2 gages).
- Staff participated in the 2012 Southwest Wildfire Hydrology and Hazards Workshop held in Tucson. ADWR has assisted other state and federal agencies in organizing the workshop to bring together researchers from multiple government agencies, academic researchers, and other interested parties to discuss the state of post-wildfire research, to disseminate recent advances in post-fire agency and academic response, and to coordinate response to future wildfires in the Southwest.
- Enhanced flood warning monitoring within Santa Cruz County by installing a rain and reservoir gage at Patagonia Lake and modifying the radio repeater at Red Mountain and other equipment at Las Canoas (Mariposa Port of Entry).

### *Floodplain Management*

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.

- Awarded \$150,000 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. Conducted assistance visits, 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 Cochise County, Coconino County, City of Flagstaff, Yuma County and the City of Yuma. Conducted assistance contacts, including brief meetings to determine if any program-related problems exist and offer training and general technical assistance, for the communities of Hayden, Mammoth, Winkelman and Patagonia.
- 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.
- Staff conducted workshops in Flagstaff, Pinal and Santa Cruz Counties for local officials and private registered land surveyors and engineers on *Completion of Elevation Certificates for Development in Flood-Prone Areas Requirements of the National Flood Insurance Program*. Conducted a workshop in Clarkdale on *Substantial Improvement and Substantial Damage Requirements of the National Flood Insurance Program*.
- Entered into a non-monetary partnership agreement with Greenlee County and FEMA Region IX for collaboration on flood hazard identification activities or needed flood studies within the County.
- Staff participated in a series of public meetings with community and county floodplain management staff to present information related to newly effective flood insurance rate maps. Meeting included: Santa Cruz County, Town of Patagonia and City of Nogales; Pinal County and the City of Maricopa
- Assisted county and community officials in Maricopa, Yavapai, Pima and Cochise Counties during series of meetings with FEMA Region 9 staff to improve understanding of local flood risk and increase local resilience to flooding by review of local flood risk data and histories, development plans, stormwater and floodplain management activities and other daily operations that impact flood risk.
- Staff organized and facilitated meetings between the Arizona Department of Fire, Building and Life Safety – Office of Manufactured Housing, Flood Control District of Maricopa County, the Maricopa County Planning and Development Department, the Maricopa County Environmental Services Department and the state and county agencies involved in floodplain regulation and permitting for manufactured homes in Maricopa County. As coordinating agency for the National Flood Insurance Program, ADWR works to ensure agencies are aware of local, state and federal floodplain regulations.

### *Assistance to the General Stream Adjudications*

The mission of the Adjudication Support Programs is support for the Gila River System and Little Colorado River System general stream adjudications by maintaining an accurate and useful registry of claimant and the providing of technically sound advice in an efficient manner.

### *Administrative Support*

The Administrative Support Program processes statements of claimants (SOCs) for both adjudications, maintains and updates SOC information, and serves summons to potential claimants who may have initiated new water uses or due to changes in property ownership.

- Served new use summons by certified mail to 1,301 potential claimants for the Gila River adjudication and 211 for the Little Colorado River adjudication that may have initiated new water uses between January 1, 2010 and December 31, 2010. The summons direct applicants to make any claims to water rights they may have by filing the appropriate court-approved statement of claimant forms.

### *Technical Support*

The Technical Support Program investigates claims for water rights in the Gila River and Little Colorado River systems, publishes comprehensive Hydrographic Survey Reports for watersheds within the two adjudications and prepares technical reports on other specific issues or factual matters.

- In January of 2012, staff participated in a three-day evidentiary hearing before the Maricopa County Superior Court on technical objections filed on the 2009 ADWR Subflow Zone Delineation Report for the San Pedro River Watershed. Following the hearing the Court directed ADWR to file a report with recommendations for supplementing the 2009 Subflow Report. This report, titled "*Subflow Zone Delineation Methodology for the San Pedro River Watershed,*" was filed with the Court in April 2012 and included large color maps, figures and tables. The methodology proposed in this report is subject to review by the court in the Gila River Adjudication and comment by the parties.
- Filed a report concerning federal reserved and state-based water rights associated with the U.S. Bureau of Land Management's Third Amended Statement of Claimant for the San Pedro Riparian National Conservation Area (SPRNCA). The report includes a description of the project area and ADWR's analyses and evaluation of federal claims together with supporting figures and appendices.
- Filed a report with the Maricopa County Superior Court concerning the implementation of a summary adjudication process for de minimis uses in the San Pedro Watershed within the Gila River Adjudication proceedings.

### *Surface Water Rights*

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.

- ADWR transitioned from postal mailings to on-line posting of the public noticing of surface water applications on ADWR's website. The on-line noticing provides the public with a centralized location to view notices and provides the public with an option to subscribe receive email notification of any newly noticed surface water application that is located within one or more watersheds of interest. Efficiency savings include a reduction in time associated with the writing of notices and cover letters, tracking of subscribers and yearly renewals, and costs associated with staff time, supplies, and mailings.
- ADWR issued 10 permits for appropriation of public water and 23 certificates of water rights.
- Staff processed and issued letters of completion for 247 assignments of surface water rights and claims due to changes in property ownership.
- ADWR issued public notices of 33 applications for appropriation of public water, including instream flow maintenance, and severance and transfer of water rights or claims.
- Staff performed 20 field inspections statewide in preparation for issuing Certificates of Water Rights including near Prescott, Flagstaff, Safford, Superior, Yuma, Fredonia, St. Johns, Williams, Heber and Joseph City.

### *Groundwater Rights and Well Drilling*

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.

- Staff processed more than 1,500 notices of intent to drill and more than 600 notices of intent to abandon wells.
- Staff processed more than 80 conveyances of groundwater rights due to changes in property ownership.
- ADWR issued three new permits to withdrawal groundwater and two new permits to recover recharged groundwater.
- ADWR issued more than 20 new and renewal well driller licenses and administered well drilling exams to nearly a dozen applicants.



- Staff performed nearly 70 well inspections statewide to verify minimum well construction standards and obtain other factual data in Maricopa, Pinal, Gila, Yavapai, Graham, Pima, Mohave, Navajo counties.
- ADWR issues four citations for missing Well Driller Report forms and collected \$1,000 in civil penalties deposited into the state general fund.

## Hydrology Division

### *Publications and Reports*

The Hydrology Division completed major studies and published the following:

- Statewide Hydrologic Monitoring Report (Late 1980s Early/Mid 1990s to Mid/Late 2000s). The report provides data and analysis of Arizona's groundwater conditions over the last two decades. The period analyzed includes a time of significant variability in groundwater use trends, both inside and outside Arizona's AMAs, and covers the first 20 years of Central Arizona Project water deliveries for direct use and recharge in central Arizona.
- Sub-basin Water level Change Map Book
- Internal Draft Report for the Buckeye Water Logged Area Analysis: Procedures and Results
- Interactive Land Subsidence Map

### *Stakeholder Outreach*

The Hydrology Division conducted an on-line survey of stakeholders concerning their water level data needs and their interest in participating in future automated online hydrologic data submittal and data sharing opportunities.

The Hydrology Division Geophysics and Survey group helped organize and run the 2011 Shelmon Specialty Conference on Land Subsidence and Earth Fissure Issues in Tempe.

### *Groundwater Modeling*

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

- Updated and improved the Tucson AMA Model and the AMA's Water Budget Information
- Continued calibrating and documenting the Pinal AMA Groundwater Model
- Updated and improved the Prescott AMA Model
- Continued building and incorporating new data into the Phoenix AMA Groundwater Model (combined the Salt River Valley and Hassayampa Models)
- Provided support for Hydrologic Chapters of 4<sup>th</sup> Management Plan Reports For Prescott and Tucson AMAS

### *Field Services*

The Basic Data Unit conducted approximately 2,300 water level measurements statewide at ADWR-Groundwater Site Inventory Index well locations, and at special monitoring

network locations in the Coconino Plateau, Big Chino basin, Payson/Tonto basin area and Santa Cruz AMA.

Staff performed new installations, automated water level data collection, performed operation and maintenance of over 120 statewide automated monitoring sites including wells in state and national parks, on Arizona State Trust Lands, Bureau of Land Management land and installed in various irrigation district, industrial, municipal and private wells.

The Geophysics and Survey Unit (GSU) completed several gravity and subsidence studies and published reports and maps on land subsidence and earth fissuring throughout the state. The GSU also completed a depth-to-bedrock study in the Butler Valley in cooperation with the Arizona State Land Department and the Arizona Geological Survey (AZGS). The GSU worked with AZGS and other stakeholders on various land subsidence and earth fissure studies throughout state (including a new study in cooperation with CAP).

### Colorado River Management

*Comprehensive Water Management Including Shortage Sharing Agreement with Mexico*  
ADWR, the other Colorado River Basin states, and the Federal government have been involved with Mexico in intensive negotiations for the past year to develop consensus on comprehensive water management, including a shortage sharing strategy, on the Colorado River. The goal is to complete this bi-national water management agreement by the Fall 2012.

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

Significant effort has been devoted to the development of the Colorado River Basin Supply and Demand Study. This study is a collaborative effort of the seven Colorado River Basin States, the Bureau of Reclamation, Indian Tribes, and other interested entities to identify projected water supply and demand imbalances throughout the Basin through the year 2060 and to analyze potential mitigation measures. Over the last year, Interim Report #1 has been published, the Water Demand Assessment has been completed, System Reliability Metrics have been developed, Demand Scenarios have been quantified, a System Reliability Analysis has been performed, and Options and Strategies to address the projected supply and demand imbalances have been developed. The Study Report is scheduled to be published by September 2012.

#### *Non-Indian Agricultural Priority CAP Water Reallocation Process*

ADWR is currently in the process of preparing criteria for the reallocation of Non-Indian Agricultural Priority water as identified in the 2004 Arizona Water Settlements Act. This reallocation process is for a limited amount of CAP water that is of a lower priority and will be subject to shortage. The Department has already received requests that exceed the approximately 96,000 acre-feet that is available. The criteria are being developed to allocate this water to the highest and best use possible. The Department is preparing for public meetings to present these criteria to interested parties in the Fall of 2012.

## Indian Settlement Negotiations

### *White Mountain Apache Tribe*

On January 13, 2009, the White Mountain Apache Tribe, the United States, the State of Arizona and a number of other state parties executed the White Mountain Apache Tribe Water Rights Quantification Agreement (“Quantification Agreement”). Federal legislation approving and authorizing the agreement was passed by Congress and signed into law by the President on December 8, 2010. The Quantification Agreement quantifies the water rights of the Tribe within the Gila River Adjudication and the Little Colorado River Adjudication areas. As part of the settlement, the federal government will construct the White Mountain Apache Tribe Rural Water System to divert, store and distribute water from the White River to communities within the Tribe’s reservation. Also, the Tribe will receive an allocation of 25,000 acre-feet per year (AFY) of Non-Indian Agricultural priority Central Arizona Project (“CAP”) water and will lease the water to various municipalities in the Phoenix Active Management Area and the Central Arizona Groundwater Replenishment District. The State of Arizona will firm 3,750 AFY of the CAP water to Municipal and Industrial CAP priority until 2108. The settlement will not become effective until several conditions are satisfied, including: (1) revising the Quantification Agreement to conform to the federal legislation and execution of the revised agreement by the parties; (2) approval of the Quantification Agreement by the Gila River and Little Colorado River adjudication courts; and (3) the State of Arizona must contribute \$2 million toward the construction of the White Mountain Apache Tribe Rural Water System. During the past year, ADWR has worked with the parties to revise the Quantification Agreement. ADWR also has worked to update the court-approved mailing lists in the Gila River and Little Colorado River adjudications so that notice of the motions to approve the settlement can be provided to all claimants in the adjudications. Finally, during the 2012 legislative session, the Arizona legislature authorized an appropriation of \$2 million as the state’s contribution to the settlement. Work on satisfying the conditions to enforceability of the settlement will continue during the next year.

### *Hualapai Tribe*

During the past year, ADWR has been involved in negotiations with the Hualapai Tribe, the United States and certain state parties for a settlement of the water rights claims of the Tribe, including the Tribe’s claims to the Colorado River. The Hualapai Tribe reservation’s northern border is bounded by the Grand Canyon and the Tribe claims that its reservation boundary extends to the middle of the Colorado River. Those negotiations are on-going and confidential.

### *Navajo Nation and Hopi Tribe*

During the past year, ADWR worked with the Navajo Nation, the Hopi Tribe, the United States and a number of state parties on a settlement of the tribes’ claims to the Little Colorado River. On February 14, 2012, legislation was introduced in Congress authorizing a Little Colorado River Settlement. On March 8, 2012, representatives for

the parties finalized language for a proposed settlement agreement and agreed to submit the settlement agreement to their principals for approval. The terms of the settlement would create two Navajo Nation groundwater projects and one Hopi Tribe groundwater project, would re-allocate 6,411 AFY of Non-Indian Agricultural priority CAP water to the Navajo Nation for use at Window Rock, would retain certain CAP water for use in a future settlement of the Navajo Nation and Hopi Tribe's claims to the Lower Colorado River, would give both Tribes certain rights to the surface waters reaching their reservation, and would provide groundwater protection near the southern boundary of the Navajo reservation.

## **CRITICAL CHALLENGES/OPPORTUNITIES**

### Issue 1: Continuation of Groundwater Management in the Five AMAs 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 2025. Safe-yield is accomplished 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 to prevent local water tables from experiencing long-term declines.

One tool to assist the AMAs to achieve their goal is the adaption of a series of five groundwater management plans to be implemented in sequence from 1980 through 2025. This past year ADWR began the development process of the Fourth Management Plan (Plan). As part of that development ADWR completed Assessments of the current conditions of each of the five AMA's. This information along with stakeholder input will provide the frame work for the development of the Fourth Management Plan.

ADWR will approach the Fourth Management Plans more as Plans for success than a document that simply identifies the statutory requirements for the main water using sectors. In this Plan 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 us so far. We 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 we determine what course of action to follow.
5. Recognize sub-area issues and consider alternative management strategies to address areas where conditions are positive and 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.

The AMA Groundwater User Advisory Council's (GUAC) will be the forum in which the public can participate to obtain information and submit comments on the Plan. During this past year, ADWR has hosted two meetings in the Phoenix, Pinal, Prescott, and Tucson 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 the AMAs. This summer, ADWR will host GUAC meetings to provide the public with the opportunity to present their comments and ideas to the GUAC members as to what they would like to see included in the "Future Directions" chapter of the Plan.

The Code mandates the inclusion of progressively more restrictive groundwater conservation requirements and methods to supplement groundwater supplies from the First Management Plans through the Third Management Plans. The Code is specific as to what programs must be included in each sequential management plan and ADWR has met the statutory mandates requiring the establishment of a water rights system and the continuing development and refinement of mandatory conservation requirements for industrial, municipal, and agricultural water users. For subsequent management plans, the statutory requirements are more vague, which implies the need to conduct a thorough assessment of the status of each AMA prior to the development of the Fourth Management Plan.

#### *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 large strides in ensuring there are sufficient supplies for future development and to provide back-up supplies for times when surface water supplies are limited. After review of the Phoenix AMA Assessment, it is clear 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 on increasing 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 goal of the Pinal AMA is unique; there is recognition of the importance of agriculture to the economy of this region. However, there is also a need to preserve water for current and future non-agricultural uses. 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 supported by the findings of the Governor's Water Management Commission and the Third Management Plan water budget and analysis. Because of the recent downturn in the economy, there has not been a real opportunity to evaluate the impact of the potential savings from the rule modifications. Until additional time has elapsed and growth increases in this AMA, 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 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 its economy. The goal of this AMA is to maintain its current safe-yield status and protect the local water levels within its boundaries. With 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 should be focused on developing mechanisms such as recharge of underutilized reclaimed water and well spacing requirements that reflect the goal of protecting existing water levels.

### *Prescott AMA*

The Prescott AMA was declared by ADWR to be out of safe-yield in 1999. The management goal is the same as the Phoenix and Tucson AMAs, which is to achieve 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. Efforts should be focused on developing long-

term reliable renewable water supplies and increased efficiencies of existing uses of water in this AMA.

## Issue 2: Ensuring Long-Term Water Supplies for Future Generations

One of ADWR's most important roles is securing water supplies for future generations. As such, when the Groundwater Code was adopted in 1980, it changed the water adequacy requirements for new subdivisions within AMAs by requiring developers of subdivided land in an AMA to obtain a determination of a 100-year *assured* water supply from ADWR before the plat for the subdivision can be recorded and a public report can be issued by the Arizona Department of Real Estate ("ADRE"). A.R.S. § 45-576. In order to obtain a determination of assured water supply, developers must demonstrate that a water supply of adequate quality is physically, continuously and legally available for 100 years, that the developer has financial capability to construct any necessary delivery and treatment facilities, and that any groundwater use is consistent with the management plan and management goal of the AMA.

Except for counties and municipalities that have adopted mandatory adequacy requirements as allowed by A.R.S. §§11-806.01(F) and 9-463.01(O), areas outside AMAs are not subject to the assured water supply requirements, but remain subject to the adequacy provisions of A.R.S. § 45-108. Limited consumer protections in areas outside of AMAs provide residents with less assurance of a future water supply than residents within AMAs. Consumer protection is weaker in two ways. First, outside AMAs, only the first purchase of a new subdivision lot must receive notification of the sufficiency of the water supply which could allow subsequent purchasers of homes found to have inadequate supplies with no notice of this determination. Within AMAs, new subdivisions must have a sufficient water supply before any lots are sold. Second, well spacing is regulated in AMAs but is not regulated in areas outside AMAs. Thus, outside AMAs, new large wells may be drilled near a well serving a subdivision, causing the subdivision well to go dry.

The limited consumer protections in areas outside AMAs raise several concerns regarding the water supply on which those homeowners rely:

- ❖ ***Need for more assurance of sufficient water*** – The adequate water supply provisions, applicable outside AMAs, require ADWR to issue a report on the sufficiency of the water supply, but do not prohibit the development or sale of subdivision lots in the absence of sufficient water. If ADWR determines that the water supply is insufficient, the developer is required only to notify potential buyers by displaying the water supply information in promotional materials and subdivision lot sales contracts. Only the original purchaser is entitled to this notification regarding the water supply, as there is no requirement that the water supply information be disclosed to subsequent purchasers when a subdivision lot is resold. As mentioned above, this contrasts with the assured water supply provisions applicable within AMAs, which prohibit the development or sale of subdivisions that do not have a sufficient 100-year water supply, thereby

protecting consumers from purchasing subdivision lots with insufficient water to meet their needs.

In 2007, SB 1575 was enacted to address the inequity between the two sets of requirements in response to recommendations from the Statewide Water Advisory Group (SWAG). SB 1575 gave specific authority to cities, towns and counties outside AMAs to require developers within their jurisdictions to demonstrate a 100-year adequate water supply before platting and selling lots. A county may adopt such a requirement only upon the unanimous vote of the board of supervisors. To date, only Cochise County, Yuma County, the Town of Patagonia, and the City of Clarkdale have adopted such requirements. All other areas of the state outside AMAs are still regulated under the original adequacy provisions which allow the sale of subdivided land with findings of water supply inadequacy.

- ❖ ***Coordinating Long-Range Statewide Planning*** - The need for statewide regional planning is an ongoing issue. This includes all areas of the state including outside of AMAs, rural Arizona, and areas along the Colorado River. The WRDC has been tasked with assessing the current and future water needs of Arizona, focusing on meeting the water needs of rural Arizona. WRDC will prepare a report of its findings and recommendations. ADWR has a leadership role and is coordinating this effort.
- ❖ ***Assisting in the development of water supply projects*** – The WRDC has identified the need for the development and augmentation of water supplies throughout Arizona, both in the rural communities and within portions of the AMA's. Further the WRDC has also identified the need to establish a funding mechanism whereby communities can pool resources to finance infrastructure projects with may include public-private partnerships. ADWR has a leadership role in the development of identified water resources and the required infrastructure to help facilitate potential partnerships across Arizona.

### Issue 3: Surface Water Permitting

ADWR lacks authority to: bring administrative enforcement actions for violations of the state's surface water laws; manage the use of surface water resources pursuant to water rights or claims; or resolve disputes between surface water users. When ADWR receives a complaint that a person is violating surface water laws, it attempts to persuade the violator to comply. If that fails, ADWR requests the appropriate County Attorney or the Attorney General investigate and take proper enforcement action. Certain violations of the surface water laws have been classified as class 2 or 3 misdemeanors and may be prosecuted by local law enforcement agencies, the county attorney or the Attorney General. See A.R.S. §§ 45-112 and 45-190. In some cases, the public is frustrated by ADWR's inability to administer the law and resolve surface water complaints.



## CONCLUSION

ADWR has continued to make progress to secure long-term dependable water supplies for Arizona's future, despite challenges presented by past budget limitations and the associated reduction in staffing. Funding stabilization has allowed ADWR to prioritize projects and move toward securing long-term water supplies.

While challenges to providing a sustainable water supply are numerous, ADWR continues to make progress toward this goal. Competition for water throughout the Southwest continues to increase as neighboring states experience similar rates of growth. 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 in Colorado River water supply, operations and allocation issues.

Arizona's water is also used or claimed by a number of Indian tribes whose legal rights to quantities of water currently are the subject of settlement negotiations or litigation as part of the adjudication of water rights within the State. The outcome of these proposed settlements and settlement negotiations will significantly impact the State's water budget. In addition to water supply needs for human use, environmental protection issues such as appropriate range land and forest management, are of substantial concern and may affect Arizona's future water supply availability.

The water needs of Arizona's rural areas, where few renewable supply options exist, are becoming urgent. The Water Development Commission formed by HB 2661 (2010) and appointed by the Director, continues to focus on meeting the water needs in rural Arizona.

Substantial progress has been made within central Arizona in moving toward a sustainable water future. Although, challenges still exist in rural Arizona, ADWR's long-term view of water management needs has served the State well.