

W21, 11/1998

**ARIZONA DEPARTMENT OF WATER RESOURCES**

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JANE DEE HULL  
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HONORABLE JANE DEE HULL  
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HONORABLE MEMBERS  
Arizona State Legislature

I am pleased to submit to you the Annual Report for Fiscal Year 1998 for the Arizona Department of Water Resources. This Report provides an overview of the Department's functions, as well as accomplishments, between July 1, 1997 and June 30, 1998.

During Fiscal Year 1998, the Department invested a significant amount of time on the development of the Draft Third Management Plan (TMP). The Department is mandated to develop the TMP by the 1980 Groundwater Management Code. The TMP will be promulgated in the year 2000 and will continue Arizona's commitment to ensure a long-term, secure, available water supply.

In addition to developing the TMP, the Department has been involved in interstate issues with the six other states in the Colorado River Basin. The Department has been a key player in the discussions of California's plan to reduce their Colorado River demand. The Department has also continued to provide legal and technical support to the Arizona Water Banking Authority. The Arizona Water Banking Authority was created in 1996 by the Arizona State Legislature to ensure Arizona's full use of its Colorado River water supply.

Part of Arizona's commitment to ensure a long-term water supply is carried out through the Assured and Adequate Water Supply Program. The Assured and Adequate Water Supply Program ensures that sufficient water is available inside and outside of the AMAs for future growth. The Department is continuing to provide support to the Arizona Water Protection Fund. The Arizona Water Protection Fund was created in 1994 to fund public grants for projects assisting in the maintenance and restoration of Arizona's rivers and streams and associated riparian habitats. The Department is also cooperatively working with the Arizona Department of Environmental Quality on the Water Quality Assurance Revolving Fund (WQARF).

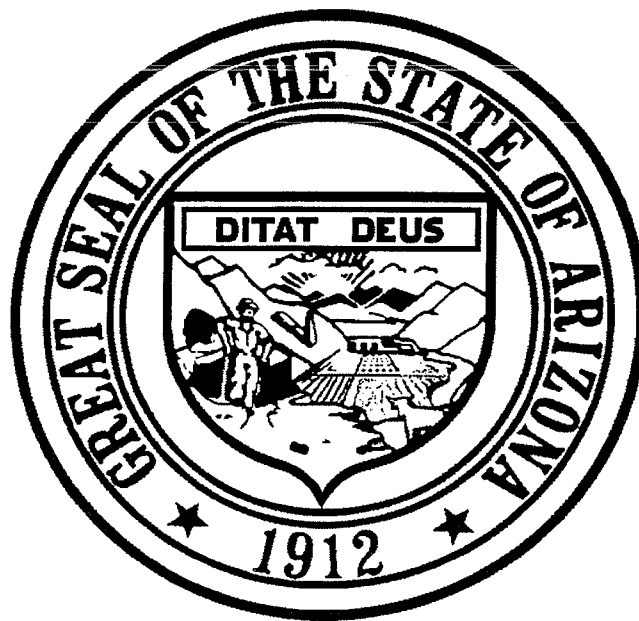
The Department of Water Resources is proud of its accomplishments during Fiscal Year 1998 and will continue to implement Arizona's water supply management laws and programs to ensure the quality of life and economic growth Arizonans currently enjoy.

Sincerely,

A handwritten signature in cursive script that reads "Rita P. Pearson".

Rita P. Pearson  
Director

STATE OF ARIZONA  
DEPARTMENT OF  
WATER RESOURCES



ANNUAL REPORT

FOR FISCAL YEAR 1998

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## TABLE OF CONTENTS

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<b>Departmental Functions and Organization.....</b>	<b>1</b>
<b>Legal Support.....</b>	<b>2</b>
<b>Legislative Actions.....</b>	<b>6</b>
<b>Active Management Areas.....</b>	<b>8</b>
<b>Prescott Active Management Area</b>	
<b>Phoenix Active Management Area</b>	
<b>Pinal Active Management Area</b>	
<b>Tucson Active Management Area</b>	
<b>Santa Cruz Active Management Area</b>	
<b>Groundwater User Advisory Councils</b>	
<b>Assured and Adequate Water Supply Program/Groundwater Recharge.....</b>	<b>22</b>
<b>Colorado River Management.....</b>	<b>25</b>
<b>Dam Safety Section.....</b>	<b>28</b>
<b>Flood Mitigation Section.....</b>	<b>29</b>
<b>Licensing and Permitting.....</b>	<b>31</b>
<b>Groundwater Filings</b>	
<b>Drilling Licenses</b>	
<b>Surface Water Permits</b>	
<b>Statewide Water Resources Planning.....</b>	<b>32</b>
<b>Hydrology Support.....</b>	<b>33</b>
<b>Computer Support.....</b>	<b>36</b>
<b>Arizona Water Banking Authority Support.....</b>	<b>37</b>
<b>Arizona Water Protection Fund Support.....</b>	<b>38</b>
<b>Financial Information for Fiscal Year 1998.....</b>	<b>39</b>
<b>Acronym Index.....</b>	<b>41</b>

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# THE ARIZONA DEPARTMENT OF WATER RESOURCES

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The Arizona Department of Water Resources (Department) was created in 1980 and entrusted with the responsibility of securing long-term water supplies for communities within the State of Arizona. Principal duties of the Department include implementing the Groundwater Management Code (Code), registering all surface water and groundwater rights, supporting the adjudication of water rights within the state, ensuring the safety of non-federal dams, assisting local entities to manage floodplains, providing technical assistance to the state's water users and representing Arizona in interstate water discussions.

## ORGANIZATION

The Department is organized into divisions, each with distinct responsibilities. The divisions work alongside to carry out the Department's mission. The divisions are as follows:

### DIRECTOR

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### OFFICE OF FINANCE AND ADMINISTRATION

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### LEGAL DIVISION

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### STATEWIDE WATER PLANNING DIVISION

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### INFORMATION TECHNOLOGY DIVISION

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### GROUNDWATER MANAGEMENT DIVISION

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### HYDROLOGY DIVISION

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### SURFACE WATER MANAGEMENT DIVISION

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## LEGAL SUPPORT

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### LITIGATION

The Department of Water Resources' Legal Division prosecutes and defends all court actions where departmental interests are at stake, except tort actions against the Department. This defense is accepted by the Risk Management Division of the Arizona Department of Administration. During Fiscal Year 1998, the following cases were active.

**Southwest Center for Biological Diversity (Southwest Center) v. United States Bureau of Reclamation (USBR), et al.**, Nos. 97-16768, 97-17110 (9th Cir., United States Court of Appeals). Southwest Center filed for an injunction to compel the Secretary of the Interior (Secretary) to release water from Lake Mead reservoir for protection of endangered species habitat, specifically habitat for the Southwestern Willow Flycatcher. Arizona joined the six other states of the Colorado River basin (California, Colorado, Nevada, New Mexico, Utah and Wyoming) in moving to dismiss the case on the grounds that it violated the states' sovereign immunity guaranteed under the 11th Amendment. USBR and others defended on the grounds that the United States had fully complied with the Endangered Species Act (ESA). The trial court found compliance with the ESA by the Secretary, and also found that the plaintiff's claim for injunction was infirm because of failure to properly comply with the ESA's 60-day notice of litigation requirement. Because the request for injunction was denied on other grounds, the trial court did not reach the states' 11th Amendment argument. The plaintiff appealed and the 9th Circuit affirmed the trial court in all respects in an opinion issued May 4, 1998. The plaintiff requested

rehearing and that was also denied on July 14, 1998. The plaintiff may still petition for review by the United States Supreme Court.

**Arizona Water Company (AWC) v. Arizona Department of Water Resources**, No. CV 90-01840, Superior Court of Maricopa County, Arizona. AWC appealed the Director's decision adopting the Second Management Plan (SMP) for the Phoenix, Tucson and Pinal Active Management Areas (AMAs). AWC challenged the procedures followed by the Department in adopting the SMP and certain substantive provisions of the municipal conservation program. Upon stipulation by the parties, the judge entered an order on January 29, 1998 staying the case until January 16, 1999 to give the parties time to proceed with an administrative hearing on AWC's applications for administrative review of the conservation requirements assigned to three of its systems in the SMP. A hearing on the applications for administrative review was scheduled for September 23, 1998 at the Office of Administrative Hearings.

### ADMINISTRATIVE HEARINGS

The Department uses quasi-judicial administrative hearings, conducted by the Office of Administrative Hearings, to resolve disputes over licenses, permits and alleged violations of Arizona water laws. The two most frequent hearings are cases involving applications to appropriate surface water and cases involving enforcement of Arizona's groundwater laws.

**Surface Water Applications** During Fiscal Year 1998, the Department received seven new applications for permits to appropriate

public water, including two instream flow applications. The Department issued six permits based on existing applications and issued 39 Certificates of Water Rights based on existing permits. The Salt River Project (SRP) is in the process of clarifying its water rights filings with respect to the Salt River lakes.

The City of Scottsdale has filed to change its Planet Ranch irrigation rights to municipal use rights. Both of these cases have involved significant pre-trial staff time in Fiscal Year 1998, and are expected to come to hearing in Fiscal Year 1999.

**Enforcement of Groundwater Laws** The Department underwent a transition during Fiscal Year 1998. During Fiscal Year 1998, the Department issued 27 citations for violation of the Code. These citations will be followed by enforcement action as necessary. Two cases were concluded and closed while two are approaching conclusion. Penalties collected were deposited into the General Fund. The Department investigated several suspected violations through the various AMA offices and through the Groundwater Management Section. At the end of Fiscal Year 1998, approximately 11 cases were under review in the Legal Division.

### **GENERAL STREAM ADJUDICATIONS**

There are two general stream adjudications ongoing in Arizona. These large court actions attempt to quantify and prioritize the rights of all competing water claimants in both the Little Colorado and Gila River systems. The Gila River general stream adjudication is currently assigned to the Honorable Susan Bolton of the Maricopa County Superior Court. The Little Colorado River general

stream adjudication was being conducted in Apache County Superior Court under the Honorable Allen Minker until his resignation. Special Master John Thorson assists both courts. The Department provides both administrative and technical support to the courts as directed by statute.

**Little Colorado Adjudication** Since 1994, formal legal action has been stayed in the Little Colorado adjudication to allow the parties time to negotiate a settlement of the major claimants including the United States, Indian tribes (tribes) and non-Indian users. The debate concerns what non-Indian uses will be recognized by the United States and the tribes, and the amount and characteristics of the water the tribes will receive in return. Significant staff time was devoted in Fiscal Year 1998 to attending settlement discussions and assisting in drafting a settlement agreement and proposed federal legislation. Several issues remain unresolved and it is anticipated that significant staff time will continue to be devoted in the upcoming fiscal year to further pursue settlement of this highly complex and contentious case.

**Gila River Adjudication** The Gila River adjudication is much larger than the Little Colorado adjudication and attention has accordingly been focused on certain claimants or groups of claimants instead of attempting to resolve the entire dispute. In Fiscal Year 1998, the Maricopa County Superior Court has focused almost exclusive attention on the water rights claims of the Gila River Indian Community. The Department is finalizing the Preliminary Hydrographic Survey Report (HSR) for the Gila River Indian Community's claim. The Department's analysis is primarily concerned with practicably irrigable acreage on the reservation, as limited by the extent of arable lands and the historically available

water supply.

**Special Action Proceedings** Issues arising in the General Stream Adjudications have caused two special action proceedings to be filed in the Arizona Supreme Court. The Department and its personnel have been named as parties respondent in these actions. In Special Action CV-95-0161-SA, the petitioners challenge the validity of an act of the State Legislature in changing certain provisions of Arizona water law during the pendency of the Adjudication. In Special Action CV-98-0143-SA, petitioners challenge the procedures by which the Department communicates with the courts over issues pending in the Adjudication. Both actions remain pending and unresolved at the end of Fiscal Year 1998. It is unknown whether either of these actions will be resolved in the next fiscal year.

### **ADMINISTRATIVE RULE MAKING**

The Department continuously reviews and improves its set of administrative rules. The Legal Division is responsible for drafting formal rule language to accomplish the goals set forth in policy concept papers prepared by the Department, in cooperation with local communities, and is also responsible for seeing the rules through the formal adoption process. In Fiscal Year 1998, the following rule-making activities occurred.

**Time Frame Rules** The Department continued toward promulgation of Time Frame Rules as required by Arizona Revised Statutes (A.R.S.) § 41-1072, et seq. These rules are intended to delineate specific time frames for every administrative licensing and permitting activity conducted by the Department. The Department prepared and adopted a proposed rule and submitted it to

the Governor's Regulatory Review Council (GRRC) on June 1, 1998. GRRC approved the rule on that date.

**Interstate Banking Rules** Since the creation of the Arizona Water Banking Authority (AWBA), which allows for interstate banking of Colorado River water in the State of Arizona if supported by federal regulations approved by the Department, the Secretary of the Interior has been developing a set of federal regulations to implement this authority. Department staff has devoted significant time to assisting federal representatives in preparing these regulations, and has commented formally both on behalf of the Department and the AWBA on the preliminary draft. The final rule is anticipated to be published in the Federal Register in the next fiscal year.

**Dam Safety Rules and Surface Water Rules** The Department has begun working on concepts and tentative rule language for two major rule packages. The Dam Safety Rules will provide guidance on obtaining departmental authority to build or repair a dam. The Surface Water Rules will provide guidance on obtaining, using and transferring a permit to appropriate surface water. Both of these have involved significant input from the Legal Division in Fiscal Year 1998.

### **FINANCIAL GRANT PROGRAMS AND CONTRACTS**

The Department oversees financial grants for funds collected by the Department, and also serves as staff to the Arizona Water Protection Fund (AWPF) in administering its grant program. The Legal Division assists both programs.

**Conservation Assistance and Augmentation**

**Grants** The Department administers a grant program for funds collected under the Code and disbursed for promotion of water conservation and augmentation. The Legal Division provides support to this program in the form of document review, terms and contract negotiations and general legal advice to Department personnel responsible for administering the program. During Fiscal Year 1998, the staff participated in processing approximately 33 Conservation Assistance and Augmentation Grants, all of which were implemented during this fiscal year.

**AWPF Grants** The AWPf awards grants for the protection and restoration of stream systems and associated riparian habitat. The Legal Division provides legal assistance to the AWPf in accordance with statute, including document review, terms and contract negotiations and legal advice to members of the AWPf Commission concerning their official duties. In addition, significant staff time is devoted to working with the public and the AWPf in preparing grant application procedures and criteria. In Fiscal Year 1998, the AWPf funded 19 new projects, granting a total of \$2,483,500.

**Contracts** The Legal Division oversees all contracting done on behalf of the Department to ensure compliance with Arizona law. In Fiscal Year 1998, staff reviewed and approved 22 contracts, two leases and two memoranda of understanding. The Legal Division also provides legal assistance to the AWBA in accordance with statute. In Fiscal Year 1998, staff assisted in negotiating and drafting contracts with the Central Arizona Water Conservation District (CAWCD), Salt River Project and several smaller irrigation districts in the state.



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## LEGISLATIVE ACTIONS

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The Arizona State Legislature adjourned on May 22, 1998. The following is a summary of the legislation passed in Fiscal Year 1998 which impact A.R.S. Title 45 departmental operations. Unless otherwise noted, the effective date of these bills was August 21, 1998.

**S.B. 1034 (Regulatory Reform)** In 1997, Regulatory Reform legislation reconciled provisions throughout the A.R.S with the processes established when the Office of Administrative Hearings was created. As the 1997 legislation progressed, it was recognized that the provisions pertaining to the title dealing with water, Title 45, were not completely developed. As a result, amendments were made in 1998 to conform Title 45 to the Uniform Administrative Appeal Procedure (UAAP) statutes within Title 41.

A new section was added to describe how Title 45 interfaces with the UAAP. Amendments to Title 45 were designed to be consistent with the current practices of the Department and to clarify the procedures by which administrative hearings would be conducted by the OAH.

In addition, S.B. 1034 includes a number of general provisions that may impact departmental operations. Among the provisions in this bill that need implementation are a section that addresses the adoption of a "Regulatory Bill of Rights," modifications to procedures when conducting regulatory inspections, modifications to the five-year review of agency rules conducted by the GRRC and modifications to some procedures before the OAH.

**S.B. 1124 (Prescott AMA Guidelines)** S.B. 1124 directs the Department to initiate the public hearing process to determine whether the Prescott AMA is mining groundwater and is no longer in safe-yield prior to September 5, 1998. During this administrative process, the legislation imposes interim guidelines restricting groundwater use by new subdivisions. The legislation also provides guidance on processing designations of Assured Water Supply (AWS) if the final decision is that the AMA is no longer at safe-yield. The Department must include in the calculation of water available to designated providers in the Prescott AMA the maximum amount of groundwater used between 1995 and 1998 and an amount of groundwater to serve the future demand created by subdivisions the provider is committed to serve prior to August 21, 1998.

**S.B. 1201 (Water Omnibus Amendments)** Each year, the Department works with water interest groups to propose modifications to the water-related components of the A.R.S. These modifications clarify existing provisions, streamline administrative processes and address areas of general agreement. The Omnibus Water Bill passed in Fiscal Year 1998 included the following provisions:

- State and federal entities were added to the eligibility list for general use water exchange permits. Plan 6 surface waters from modified Roosevelt Dam no longer need a separate and new water exchange permit when undergoing a modification from existing uses.

- Managed underground storage facilities are incorporated under the definition of a “state demonstration project.”
- The AWBA has the express authority to exchange Colorado River water for storage at permitted facilities through water exchange permits.
- The Department acquired production and publication revolving funds, each capped at \$20,000.
- Farmers is allowed to enter into flex credit transfers with other farmers when both farmers are outside an irrigation district, but within the same subbasin.
- Allows the Department to waive statutory requirements for General Industrial Use permit applicants where hydrogeologic conditions prevent a physical water availability determination.
- A city with a Colorado River contract as a water supply may be designated as having an adequate water supply.

allows the Department to establish a historic cropping program as an alternative water conservation program for agricultural water users in an AMA. A maximum annual groundwater allotment is calculated for participating right holders based on a 75 percent efficiency, adjusted to 70 percent in areas having limiting soils. When a farmer enters into the historic cropping program the flexibility account credit balance is capped at 75 percent of the participant’s maximum annual allotment and the debit accumulation cannot exceed 25 percent of the participant’s annual allotment. The bill also prohibits the conveyance, sale or purchase of flex account credits by participants in this alternative program. The Department is directed to examine additional alternative agricultural programs that may be established if the groundwater conservation is at least equivalent to the standard program.

**S.B. 1202 (Water Recharge Regulation)**

The Department must notify a city that has land-use jurisdiction over a site when an application for a recovery well permit, storage facility permit or a water storage permit is filed and must allow the local government a comment period without impacting the Department’s authority to issue the permit.

**H.B. 2635 (Agricultural Water Conservation Program)** This legislation

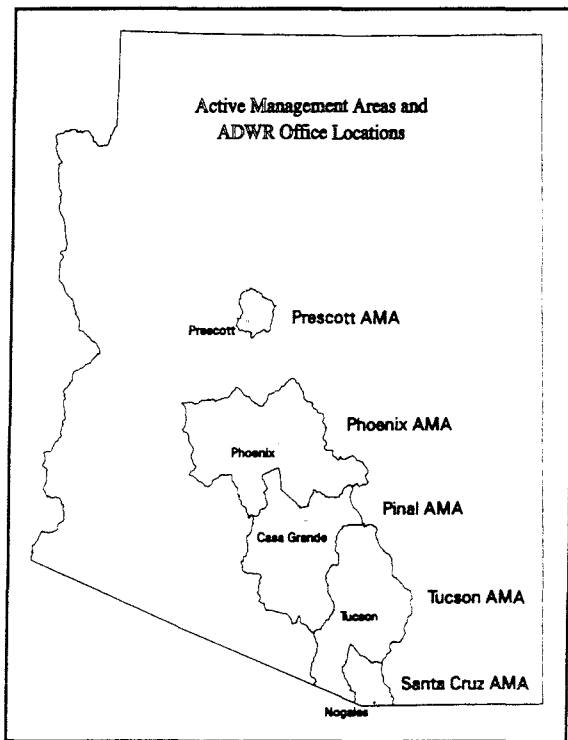
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## ACTIVE MANAGEMENT AREAS

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Active Management Areas are specially designated groundwater basins that require specific management and regulatory programs due to excessive groundwater overdraft. There are five AMAs in the State of Arizona, including Prescott, Phoenix, Pinal, Tucson and Santa Cruz. The state also designated three Irrigation Non-Expansion Areas (INAs) where groundwater depletion was also severe. These areas include Douglas, Harquahala and Joseph City.

The map below shows the location of the AMAs. The Department maintains an office in each AMA.



The individual AMA offices are primarily responsible for carrying out, within their respective areas, the provisions of the Code, Second Management Plan and Department rules and regulations. All efforts are designed

to help achieve the water management goals in each AMA. In the Prescott, Phoenix and Tucson AMAs, the goal is to reach safe-yield of groundwater resources by the year 2025. The goal in the Santa Cruz AMA is to maintain safe-yield and to prevent local water tables from declining over the long-term. Safe-yield is achieved when the amount of water being put into the ground is equal to the amount being taken out. In the Pinal AMA, where a predominantly agricultural economy exists, the goal is to manage for planned depletion.

Each AMA carries out its programs in a manner consistent with these goals, while attempting to consider and incorporate the unique character of each AMA and the many water users within.

Within each AMA, numerous programs and activities are conducted on an annual basis. These activities include:

- Keeping water user rights and databases current and accurate.
- Evaluating water use characteristics of water right holders and determining their consistency with the applicable section of the Code, management plan and rule provisions, as well as their relationship to the respective AMA goals.
- Implementing enforcement programs designed to ensure compliance with the Code, management plan and rule provisions.
- Reviewing and evaluating the

soundness of the various sections of the Code, plan and rule requirements and modifying such requirements when appropriate.

- Analyzing requests for water augmentation and water conservation proposals and making recommendations to the director on the approval of such projects and, when applicable, project funding.
- Conducting special studies on water management issues or problems unique in each AMA.

## PRESCOTT ACTIVE MANAGEMENT AREA

### Overview

The Prescott AMA is in the north central portion of the state and encompasses 485 square miles within Yavapai County. The physical environment in the AMA varies, with significant differences within the borders of the AMA in elevation, climate and precipitation.

There are four population centers within the AMA. Approximately 49 percent of the population of the AMA resides in the greater Prescott area, 28 percent in Prescott Valley, 9 percent in Chino Valley and 4 percent in the Dewey-Humboldt area. The remaining ten percent of the population reside in unincorporated areas of Yavapai County.

Within the AMA, two large and 18 small water providers deliver municipal water. Approximately 97 percent of municipal water demand is supplied by the two large water providers (excluding exempt well usage).

The AMA's 5,783 agricultural acres are described in approximately 90 Certificates of Irrigation Grandfathered Rights (IGFRs). Non-agricultural water users are regulated through Non-Irrigation Grandfathered Rights and Groundwater Withdrawal Permits.

The AMA employs three full-time staff members. Staff development is a high priority in the AMA. Training involves technical, educational, management and leadership development programs.

### Second Management Plan Implementation

Nearly all water users within the Prescott AMA are in compliance with the conservation requirements contained within the SMP 1990-2000 for the Prescott AMA. Potential compliance issues are typically addressed through education efforts and are resolved in cooperation with staff before they become formalized enforcement cases.

Water use characteristics of water right holders in the AMA are routinely evaluated to determine consistency with management plan provisions and impact on safe-yield conditions.

The AMA conducts and/or participates in special studies on water management issues within the area as needed or requested.

### Community Assistance and Involvement

The Prescott AMA staff routinely fields public information requests from citizens throughout northern Arizona and regularly participates in community activities. The general public often credits the office for its high quality of service. During Fiscal Year 1998, nearly 4,000 office hours were dedicated to public assistance. The AMA

contributes to water and natural resource presentations in the community and in surrounding communities. Water resource related information is presented and distributed to area schools and colleges, as well as to community and business/professional groups.

The AMA continued to contribute to the continuing success of the joint endeavor between the Department and the Arizona Department of Real Estate (ADRE) on the water law in the Arizona education program. An AMA staff member was certified by ADRE to help present the program.

### **Cooperative Efforts**

**Yavapai-Prescott Indian Water Rights Settlement** The Prescott AMA office provided assistance and facilitation to the various parties during negotiation of the agreement. As a result of the agreement, the AMA will have a continuing role in water use and conservation.

**Water Monitoring Program** This program, currently being expanded, has required local entity coordination and cooperation with the Department's Hydrology Division. This program will significantly impact future water resource decisions in the Prescott AMA.

**Chino Valley Irrigation District (CVID)/City of Prescott Sever and Transfer** The AMA has been an active participant and facilitator for these negotiations. Completion of this action will provide the City of Prescott ownership of the two irrigation reservoirs, Watson and Willow Creek Lakes, and the surface water rights currently held by the CVID.

**Verde Watershed Association Long-Range Plan** AMA staff have been involved in long-range planning activities for the Verde Watershed Association. Completion of this effort should provide better avenues of communication between the residents of the Verde Valley and the Upper Verde/Big Chino areas, as well as the residents of the Prescott AMA. This effort will have a major impact in ensuring long-term water supplies for the AMA.

**Third Management Plan (TMP) Development** The Prescott AMA staff and the Department's TMP Development Team have continued to work cooperatively on the TMP for the Prescott AMA.

## **PHOENIX ACTIVE MANAGEMENT AREA**

### **Overview**

The Phoenix AMA encompasses approximately 5,646 square miles in central Arizona and includes seven groundwater sub-basins. The AMA has an estimated population of 2,710,000 and contains 14 large irrigation districts, 24 small irrigation districts, 32 large municipal providers and 96 small municipal providers. During Fiscal Year 1998, water use in the AMA totaled approximately 2,103,738 acre-feet, of which agricultural water use was 1,122,425 acre-feet, or 53 percent, while combined M&I use was 981,313 acre-feet, or 47 percent.

Staff administered more than 8,500 groundwater rights in the Phoenix AMA, Harquahala INA and Joseph City INA. Approximately 7,500 of these rights are IGFRs, 500 are Type 1 and Type 2 Non-IGFRs, 123 are rights held by municipal water providers and 38 are rights held by irrigation

districts. There are also approximately 160 groundwater withdrawal authorities (permits) in the Phoenix AMA.

During Fiscal Year 1998, the AMA processed 12 water exchanges and reviewed 47 groundwater permit applications. Staff also processed 27 water right extinguishments and 19 Type 1 conversion requests. Three applications by large municipal providers for designation of an AWS and 58 subdivision applications for Certificates of AWS were reviewed to ensure consistency with the AMA management plan and goal. The Phoenix AMA also reviewed four applications for an Analysis of AWS. A total of 22 field investigations of various types were also conducted.

Approximately 4,000 annual water withdrawal and use reports were processed this fiscal year, resulting in the collection of over \$2.6 million in groundwater withdrawal fees. Of this amount, approximately \$243,281 was collected for conservation assistance and augmentation programs, \$2,433,961 for the AWBA and \$2,274 for the purpose of purchase and retirement of grandfathered rights. Purchase and retirement fees are collected from holders of interim use lake fill permits through an annual surcharge. Fees collected for the AWBA are to finance the purchase and storage of excess Central Arizona Project (CAP) Water. The Department also collected \$151,385 for Water Quality Assurance Revolving Fund (WQARF) fees for the Arizona Department of Environmental Quality (ADEQ) to address regional water quality problems.

### **AMA Program Efforts**

The Conservation Assistance and Augmentation Grant Program accomplished

the following during Fiscal Year 1998:

- The Conservation Assistance and Augmentation Grants Team conducted the 1998 grant cycle which was characterized by the identification of a series of "must fund" priority topics to be given the highest consideration for funding. These topics were researched, solicited and recommended by advisory groups as being very important in achieving water management goals in the AMA. A second tier of important topics or "other priorities" was also identified and would be funded if suitable proposals were received.
- Eight Conservation Assistance Grants totaling \$1,022,060 were recommended for funding during the 1998 grant cycle. Of these eight, one grant will be a cooperative effort between three applicants to address one of the "must fund" topics. Three of the eight grants address an "other priority" topic, with the remaining four grants focusing on non-priority topics. Four grants were recommended for funding which addressed a priority topic. The grant total recommended for Fiscal Year 1998 was \$1,425,600.
- Currently, 18 ongoing grants representing over \$1,627,770 in grant awards are being administered. Of these, seven are recharge or augmentation related, three are related to municipal use, two are related to low water use landscaping, two are industrial or turf related, one focuses on agricultural conservation, one is related to greywater use, one involves

a retrofit program and one is related to the reuse of industrial process water.

- The AMA Grants Team completed its preliminary evaluation of the entire program. This process involved an evaluation of the benefits/results of past and current grants and a general “needs” assessment. The purpose of this evaluation was to aid in the development of the future direction of the Grants Program. While all of the past and current grants have been evaluated, the future direction of the program is still under development.
- The Phoenix AMA has contributed funds for the purchase of global positioning system equipment and a gravimeter. This equipment will be used to conduct a subsidence monitoring program and a gravity survey in the AMA. This program will be conducted in areas that experienced subsidence or are prone to subsidence, including the northwest part of the AMA, encompassing northwest valley cities and in the east valley near Apache Junction. The data collected from the program will be used to evaluate water level trends, groundwater storage changes, aquifer system compaction and land subsidence conditions. The results of these analyses will assist the Department in formulating groundwater strategies and policies, particularly in critical areas.

### **SMP Implementation**

- Two applications by large municipal providers for entrance into the Non-Per Capita Conservation Program

(NPCCP) were reviewed and approved during Fiscal Year 1998. There are currently three large providers that formally entered into the NPCCP Program, including the cities of Scottsdale, Chandler and Tempe.

- The AMA reviewed and entered data submitted on the annual withdrawal and use reports and calculated the associated flexibility account balances where applicable. Information from recharge reports also was reviewed and entered to ensure the accurate calculation of recharge credits.
- The AMA Compliance Team has continued its efforts to reduce the number of right holders or permittees who failed to file annual reports through an intensive failure-to-file campaign with a goal of maintaining a less than one percent failure to file rate. Attention has also been given to field inspections of wells, metering and suspected illegal irrigation. Ongoing stipulated agreements have been monitored. The focus will include resolution of apparent groundwater authority overages and industrial program conservation allotment violations.
- Within the Phoenix AMA, five Underground Storage Facility Permits with permitted storage capacity of 81,588 acre-feet were issued, 16 Water Storage Permits and nine Recovery Well Permits were also issued. Currently, 33 recharge facilities exist in the Phoenix AMA. Long-term storage credits are calculated by each AMA and 826,840 acre-feet of credits have been

accumulated in the Phoenix AMA.

### TMP Development

- The Phoenix AMA solicited public input to develop draft municipal, industrial and agricultural conservation requirements, and an augmentation and recharge program for the TMP. This included, but was not limited to, conducting numerous technical advisory committee meetings with affected water users. The initial draft requirements underwent further departmental and external review throughout the year, including a legal review of the draft requirements.

### Groundwater Rights Administration

- The Industrial Team noticed 16 new general industrial, sand and gravel and turf users of their respective SMP conservation requirements, while the Agricultural Team successfully implemented the modification to the Flexibility Account Calculation pursuant to A.R.S. § 45-467(G) and (H). The Agricultural Team also leads the effort to coordinate the 1997 Annual Water Withdrawal and Use Report (Annual Report) revisions and mail-out and will again lead the effort to coordinate the 1997 Flexibility Account Balancing Noticing for IGFRs.

### Cooperative Efforts

- Phoenix AMA staff are active throughout the AMA. Staff serve on several committees including the Arizona Municipal Water Users Association (AMWUA) Water

Conservation Committee, the AMWUA Low Water Use Plant Committee, the WESTCAPS Water Resources Subcommittee and the SRP Joint Planning Committee. Staff also works regularly with all the major AMA cities, irrigation districts, Maricopa County Government, Soil Conservation Service, Maricopa Association of Governments, Agri-Business Council, USBR, CAWCD, the Central Arizona Groundwater Replenishment District (CAGR) and the AWBA.

## PINAL ACTIVE MANAGEMENT AREA

### Overview

The Pinal AMA encompasses approximately 4,000 square miles in south central Arizona and includes five groundwater subbasins. The AMA's estimated population is 92,000 and contains four incorporated municipalities, with Casa Grande the most populous. In addition, there are four large irrigation districts, together encompassing nearly 250,000 acres of irrigable farmland. Farming is the largest and most vital industry in the AMA, with cotton and wheat the principal crops. Other important industries include tourism, light manufacturing and food processing.

Total water use in the Pinal AMA in Calendar Year 1997 (not including effluent) was over 925,000 acre-feet, of which 44 percent was groundwater, 46 percent was CAP water (including in-lieu recharge) and 10 percent was water diverted from the Gila River. Agricultural water use accounted for more than 97 percent of total demand; municipal use, approximately two percent and industrial



use, less than one percent.

In addition to over 1,100 non-exempt irrigation rights (generally defined as farms that are 10 or more acres in size), 10 irrigation districts and 30 municipal water providers, the Pinal AMA administers approximately 175 other groundwater rights and withdrawal permits. During Fiscal Year 1998, 111 groundwater right conveyances were processed by the AMA and all non-exempt irrigation right holders and municipal providers were notified of their flexibility account balances.

A total of 1,317 annual withdrawal and use reports for 1997 were distributed in the Pinal AMA and 1,271 were filed, for a response rate of more than 96 percent. All of the Annual Reports received were reviewed for completeness and accuracy by AMA staff and nearly all right holders were found to be in compliance with the Code and the SMP.

The 1997 Annual Reports generated approximately \$1,150,000 in water banking fees and about \$265,000 in conservation assistance and augmentation fees.

### **TMP Development**

Pinal AMA staff worked throughout Fiscal Year 1998 on the third stage of development of the TMP for the period 2000-2010. The third stage involves compiling proposed water management programs to create a draft management plan.

To assist the AMA in these efforts, several work groups were established. One was established for growers and irrigation districts, one for municipal providers and one for dairies and cattle feedlots. Each work group provided valuable input to AMA staff in

developing management programs for their particular water-use sector.

### **Cooperative Efforts**

Pinal AMA staff continuously advocate sound water conservation and management practices and has facilitated the development of several cooperative conservation programs within its jurisdiction. Major cooperative activities during Fiscal Year 1998 included:

**Irrigation Management Service (IMS)**- The Pinal AMA funded IMS for the tenth consecutive year. Since its inception in 1987, the IMS program has received funds totaling nearly \$900,000 from the AMA. IMS provides on-farm training to irrigators within the AMA to improve their management of irrigation water. During Fiscal Year 1998, IMS provided season-long services to 12 growers and provided technical assistance to 13 others. The program is a cooperative effort involving the AMA, the three local Natural Resources Conservation Districts (NRCDs), the U.S. Natural Resources Conservation Service and the USBR.

### **Pinal County Water Augmentation Authority (PCWAA)**

The Pinal AMA worked throughout Fiscal Year 1998 to assist PCWAA with the development of a project to recharge municipal CAP water supplies for local providers. The Board of Directors for PCWAA includes representatives from Pinal County, the AMA's four incorporated municipalities, two of its four large irrigation districts and two private water companies. In 1996, the Board retained the services of a consultant to assist with project development.

By the end of Fiscal Year 1997, the consultant had evaluated several recharge alternatives, including direct recharge

facilities at various sites throughout the AMA and groundwater savings arrangements (in-lieu recharge) with local irrigation districts. During Fiscal Year 1998, the Board decided to pursue the in-lieu recharge alternative and obtain the necessary permits from the Department for the project. Actual recharge is expected to begin in the fall of 1998.

PCWAA is required to justify its annual funding request to the Director of the Department. The amount that may be requested is limited to \$200,000 of the AMA's groundwater withdrawal fees collected annually. For Fiscal Year 1998, PCWAA received about \$120,000 from the AMA.

### TUCSON ACTIVE MANAGEMENT AREA

The Tucson AMA covers 3,866 square miles in southeast Arizona and includes the Avra Valley Subbasin and the northern part of the Upper Santa Cruz Subbasin. The Tucson AMA covers portions of Pima, Santa Cruz and Pinal Counties. Incorporated cities include Tucson, South Tucson, Marana, Oro Valley and Sahuarita.

Groundwater supports almost all water requirements in the AMA. About 12,000 acre-feet of water demand is met with effluent supplies. Because of water quality problems with direct delivery of CAP water in 1993 and subsequent restrictions on CAP use imposed through an initiative, CAP water has not been directly delivered to municipal users since 1994. Some CAP water is being recharged at underground storage facilities in the AMA and is being directly delivered to farms in exchange for CAP water storage credits that can be recovered in the future. Total water use in Fiscal Year 1998 (not including

effluent) was about 327,000 acre-feet. Municipal water use was 44 percent of water demand, agriculture was 38 percent and copper mining and other industrial users accounted for 18 percent.

The AMA population in Fiscal Year 1998 was approximately 802,000. The majority of the population, 78 percent, is served by Tucson Water, operated by the City of Tucson. The Tucson AMA contains one consolidated irrigation distribution system which is operated by the Cortaro-Marana Irrigation District. It serves water to more than 70 IGFRs totaling about 11,000 acres.

Tucson AMA staff is actively involved in water rights administration, conservation and augmentation assistance activities, the AWS Program, the recharge program, SMP implementation, development of the TMP, local Indian water rights settlement issues, regional planning activities and renewable supply issues, including effluent utilization planning and regional recharge planning.

### Water Rights Administration

The Tucson AMA is responsible for the regulation of 1,537 water rights in the Tucson area and the Douglas INA. In 1998, Tucson AMA staff processed 1,203 Annual Water Withdrawal and Use Reports. This involved 326,624 acre-feet of groundwater for the AMA, 25,060 acre-feet of which was in-lieu CAP water delivered to farms and 43,186 acre-feet for the INA. During Fiscal Year 1998, staff completed approximately 90 conveyances of grandfathered water rights, one Type 1 conversion, one extinguishment of water rights for AWS credits and notified large municipal right holders of their flexibility account balances.

### **Conservation and Augmentation Assistance Program**

The Tucson AMA staff provides technical and administrative support for the Conservation and Augmentation Assistance Program. Fifteen Conservation Assistance Grants totaling approximately \$240,000, two augmentation projects totaling \$270,000 and \$34,250 for a subsidence monitoring project were approved and managed by the Department during Fiscal Year 1998.

The Conservation Assistance Program supported activities such as development of a water supply and demand issues video, an agricultural irrigation video, a booklet and two water conservation displays at the Arizona-Sonora Desert Museum, interactive computer kiosks for public use with a 1996 CD-ROM on desert landscaping and a variety of water conservation education workshops and outreach programs for all age groups. Conservation studies were also initiated to determine the conservation potential of sub-surface drip irrigation, reuse of cooling tower blowdown water for landscape irrigation, agricultural effluent utilization and efficiency of h-axis (front loading) clothes washers.

### **AWS Program**

Tucson AMA staff completed the processing of the Tucson Water AWS designation application during Fiscal Year 1998. This involved a detailed evaluation of the water supplies available to the utility, development of demand estimates and the preparation of review and summary documents. The designation order was issued in March 1998. AMA staff also participated in reviewing the Spanish Trail Water Company AWS

designation application. During Fiscal Year 1998, AMA staff reviewed 11 applications for Certificates of AWS and prepared water demand summaries for each of the water providers serving these subdivisions.

### **Recharge Program**

There continues to be considerable recharge permitting activity in the Tucson AMA. Tucson AMA staff held six preapplication meetings, one for a groundwater savings facility, one for a recovery well permit and four for underground storage facilities. Recharge-related applications reviewed included nine facility permits and 10 water storage permits. Of the applications, four facility permits and all the water storage permit applications were issued. By the end of Fiscal Year 1998, permits allowing the recharge of 53,513 acre-feet of CAP water had been issued. The Tucson AMA expects continued heavy activity in recharge permitting in the next fiscal year.

### **SMP Implementation**

Tucson AMA compliance activities in Fiscal Year 1998 included approximately 100 file audits, five office audits and 10 field inspections. A total of two enforcement cases were resolved, one through stipulated agreements and one through stipulation and fine.

Approximately 140 applications for administrative review and variance were filed in the Tucson AMA following adoption of the SMP. A request for a stay pending the outcome of the SMP agricultural studies by Cortaro-Marana Irrigation District (CMID) and Kai Farms delayed the processing of 78 agricultural administrative review applications. In the fall of 1997, CMID and

Kai Farms decided to move forward with the application processing. Stipulations were completed on 37 IGFRs in CMID and 11 for Kai Farms. Six applications with an ownership change require processing. Eighteen applications were not recommended for an allotment adjustment and will receive a letter denying their request and allowing for a right to hearing. The remainder of the administrative review applications are in the category of exempt small rights with no action expected to be taken.

### **TMP Development**

During Fiscal Year 1998, the Tucson AMA planning staff focused on developing conservation programs for the TMP and writing the draft management plan for the AMA. Drafting the plan required a considerable amount of internal coordination and public input and AMA staff made important contributions to the Department's overall TMP efforts. Staff made numerous public presentations on program development and the draft TMP chapters at the monthly Groundwater Users Advisory Council (GUAC) meetings and solicited review of the draft chapters from the TMP Technical Advisory Committees and other public groups in order to consider their concerns and comments.

### **Cooperative Efforts**

Tucson AMA staff are very active in the community, attempting to facilitate resolution of various water issues. Staff serve as active participants in a number of local committees involving water quality and water management. The following are examples of efforts that occurred during Fiscal Year 1998:

### **Regional Recharge Planning Process** The

Regional Recharge Planning Process is a collaborative planning effort initiated by the Tucson AMA office and the Tucson GUAC to develop a coordinated approach to recharge activities in the Tucson AMA. During Fiscal Year 1998, a recharge needs assessment was completed and the Regional Recharge Plan (RRP) was developed for publication. The RRP summarizes the work of the Institutional Policy Advisory Committee (IPAG) and the Regional Recharge Committee and includes a complete assessment of technical and legal issues and an evaluation of the most viable recharge sites relative to achieving particular objectives. The IPAG also provided advice to the AWBA regarding suitable sites for AWBA storage.

### **Disinfection By-Product Issues Study**

Tucson AMA staff administered and facilitated a contract which involved a literature search to evaluate disinfection by-product issues related to the recharge and recovery of CAP water. AMA staff interviewed AMA water providers to define the issues, organized a review committee, reviewed and edited the final report and coordinated efforts between the various parties. Data gaps and opportunities for future cooperative studies were also identified which may involve AMA staff participation in the next fiscal year.

### **Upper Santa Cruz Water Users Group**

**(USCWUG)** USCWUG consists of local and regional water users from all sectors and public agencies involved in water supply management in the Green Valley-Sahuarita area. Tucson AMA staff assisted their efforts to evaluate the feasibility of CAP water utilization in the area through funding and administering a \$297,000 consulting contract. Work on the one-year project began in August 1997. USCWUG members provided essential

data and served as an advisory committee to the study. AMA staff supported USCWUG's activities by providing administrative support (mailings, meeting activities) and by providing updates and presentations about the study to the GUAC. USCWUG has used information from the study as a basis for further coordination and planning and pursued various issues related to feasibility of implementation of a potential CAP water delivery project.

**The Southern Arizona Water Rights Settlement Act (SAWRSA)** SAWRSA is intended to resolve water rights claims of the San Xavier and Schuk Toak Districts of the Tohono O'odham Nation in the Tucson AMA. Amendments to the 1982 Act are still under negotiation. The Tucson AMA area director has participated in these negotiations as a representative of the Department and the AMA. Tucson AMA staff have provided information and facilitated meetings of a technical subcommittee of the SAWRSA group.

**Regional Effluent Planning Partnership (REPP)** Tucson AMA staff are participating in this effort to resolve effluent utilization issues in the Tucson AMA including ownership, infrastructure and rates. Participants include the City of Tucson, Pima County, USBR and the Tucson Regional Water Council.

**Southern Arizona Regional Water Management Study** The Bureau of Reclamation, Pima County, water providers in the northwest Tucson metropolitan area, Tucson Water and other entities are engaged in a water management study to evaluate renewable supply use alternatives for northwest area water providers. Tucson AMA staff have been involved in developing a work

plan, identification of issues and providing planning assistance.

**Tucson AMA Subsidence Monitoring Study** AMA staff developed a cooperative subsidence and aquifer monitoring program with the United States Geological Survey (USGS), Pima County and the City of Tucson in early 1998. This effort involves ongoing measurement of changes in land surface elevation using global positioning system equipment and aquifer storage using gravity measurements. Tucson AMA monitoring assistance monies are providing partial funding for this project and Department staff are involved with field activities and data collection.

## **SANTA CRUZ ACTIVE MANAGEMENT AREA**

The Santa Cruz AMA was created by the Legislature in 1994. The Santa Cruz AMA consists of 716 square miles of the southern portion of the Upper Santa Cruz Subbasin and is bordered to the south by Sonora, Mexico.

The Santa Cruz AMA is in the final stages of clarifying its management goal, which will address the AMA's unique hydrologic, environmental and geographical characteristics. Currently, the Santa Cruz AMA's most important water resource, the Santa Cruz River aquifer, is presumed to be at safe-yield. However, regional growth, both in Arizona and Sonora, will increase pressure on local water supplies.

AMA staff administered 132 water rights; 14 of which are service area providers, four are large providers and 10 are small providers.

AMA staff is assessing water use in the AMA as part of the TMP. Approximately 60 percent

of all water withdrawn from wells in the Santa Cruz AMA is used for irrigation on forage and crops totaling an area of 5,300 acres. Municipal providers served approximately 6,847 acre-feet of water in 1996. The four large providers within the AMA are the City of Nogales, Rio Rico, Tubac Valley and Valle Verde. They account for nearly 90 percent of reported municipal water use. Additionally, there are nearly 600 exempt wells which supply water to beneficial use in the AMA.

The industrial sector accounts for nearly 10 percent of the reported water use in the AMA. The primary industrial water users are golf courses, produce packaging facilities and, to a lesser extent, sand and gravel operators. The industrial sector water use is projected to increase as more golf courses are planned and the impacts of the North American Free Trade Agreement (NAFTA) begin to unfold.

Santa Cruz AMA staff additionally administered an \$180,000 Augmentation Grant. These grant monies quantify effluent recharge, riparian water use and water education programs which benefit the constituents of the AMA.

### SMP Implementation

Currently, all water providers within the Santa Cruz AMA are in compliance with the SMP conservation requirements.

The recent notification of Tubac Valley Water Company as the AMA's fourth large provider in 1996 could include an administrative review request.

The AMA staff is coordinating with the Hydrology Division of the Department in formulating a computer model of the Santa Cruz River watershed. Incorporating the

numerous influences on the watershed, this model will assist in long-range resource planning for the Santa Cruz AMA.

### Cooperative Efforts

The primary source of water in the AMA, the Santa Cruz River and its watershed, is shared with Sonora, Mexico. Because of this unique relationship, the Santa Cruz AMA is involved with international water resource issues. The Department continues to provide support to Arizona communities in the project certification process through the Border Environmental Cooperation Commission and the North American Development Bank. The Santa Cruz AMA staff has developed and continues to reinforce the data exchange relationship with the water resource agencies at the local, state and federal level.

Additionally, the Santa Cruz AMA is involved with water quality issues which directly affect regional water resources. The AMA staff has assisted with the Santa Cruz County Well Head Protection Program and has supplied data exchange with the City of Nogales Watershed Protection Program.

### GROUNDWATER USERS ADVISORY COUNCILS (GUAC)

The Code established a five-person GUAC for each AMA. GUAC members are appointed by the Governor to serve six-year terms. The GUACs meet monthly to review groundwater management programs in their respective AMAs and provide advice to the Director and comment on such matters as management plans, proposed rules and pending legislation.

GUAC members serving in Fiscal Year 1998 are listed below.

**Prescott AMA**

John Olsen  
Marvin Larson  
Lincoln Hathaway  
Brad Huza  
Larry Tarkowski

**Phoenix AMA**

Stephen S. Cleveland  
Frank Fairbanks  
Bruce Heiden  
William Rodie  
John Williams, Jr.

**Pinal AMA**

Oliver Anderson  
David Snyder  
Tom Isom  
Paul Prechtel  
Henry Perales

**Tucson AMA**

Dee O'Neill  
Alan Lurie  
John Nachbar  
Chuck Sweet  
Agricultural Representative, vacant

**Santa Cruz AMA**

Mr. Ron Morriss  
Mr. Duke Petty  
Ms. Sherry Sass  
Mr. Roy Ross  
Mr. Ron Fish

During the Spring of 1998, each GUAC reviewed applications and made recommendations to the Director for Conservation Assistance and Augmentation Grants. Each AMA's GUAC was also involved in a variety of diverse activities.

The **Prescott AMA GUAC** recommended that 1998 water withdrawal fees remain at

\$1.00 (the same as 1997) and the conservation/augmentation fee remain at \$1.00. The GUAC also recommended that conservation and augmentation monies continue to be available for water monitoring activities, a proposal that was enacted with the 1996 Omnibus Water Bill.

The **Phoenix AMA GUAC** was active in a number of issues during Fiscal Year 1998 including the review and comment on the Omnibus Bill and the TMP development. The GUAC also recommended the Fiscal Year 1998 groundwater withdrawal fee of \$2.75 for the AMA to the director, as well as funding recommendations for the Conservation Assistance and Augmentation Program.

The **Pinal AMA GUAC** recommended that the Director keep the AMA groundwater withdrawal fee for Conservation Assistance and Augmentation programs at \$.50 per acre-foot for calendar year 1998 and award grants to one conservation assistance project and one augmentation project for 1998, commented on the AWBA's 1998 Plan of Operation and reviewed proposed groundwater management programs for the Third Management Plan. The Pinal GUAC also monitored the status of the 1997 Conservation Assistance and Augmentation Grants, 1998 water legislation, and the activities of Pinal County Water Augmentation Authority.

The **Tucson AMA GUAC** reviewed and commented on the AWBA 1998 Plan of Operation, funding for grants in the Conservation and Augmentation Assistance Programs and the monitoring program (including open-ended contracts to support recharge activities), the establishment of the withdrawal fees for calendar year 1998, water-related legislation and Colorado River/CAP issues. The Tucson GUAC also discussed

recharge program status, CAP delivery priorities, recharge feasibility in the Cañada del Oro Wash, the Green Valley CAP feasibility study, the RRP and recommendations on AWPf applications. The GUAC spent a considerable amount of time during Fiscal Year 1998 discussing and reviewing draft Tucson AMA TMP chapters and TMP issues.

When the **Santa Cruz AMA** was created, the Governor appointed members to the GUAC shortly thereafter. Since then, the GUAC has served as a community forum for discussion of the water issues facing the region, including well head protection proposals, an effluent recharge study and development of project concepts for AWPf grant applicants. The Council has also made recommendations regarding clarification of the AMA goal, AWPf applications and the disposition of water from a local groundwater cleanup project. Also, due to the Santa Cruz AMA's reliance on water inflows from Mexico, the GUAC has monitored international water issues as well as developments related to a Mexican water proposal for neighboring Nogales, Sonora.



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# ASSURED AND ADEQUATE WATER SUPPLY PROGRAM

## GROUNDWATER RECHARGE

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The Assured Water Supply and Recharge Programs require concerted efforts throughout the Department. These "supply-side" programs are somewhat interrelated because several water suppliers undertake recharge activities as a means of satisfying AWS requirements.

Department staff provide guidance to applicants and communities, evaluate filings, resolve legal questions, develop policy and maintain the operational aspects of the program.

### ASSURED WATER SUPPLY PROGRAM

In our desert environment, wise allocation and use of water supplies is critical to maintaining our standard of living and a healthy economy. The Department's AWS Program plays an important role in long-term management of our water supplies.

Arizona's AWS Program is designed to support the state's economic health by preserving groundwater resources and promoting long-term water supply planning. The AWS Program mandates the demonstration of available water supplies for new subdivisions in AMAs. It is the regulatory component of the Code that limits groundwater use in the AMAs. The Program also serves a consumer protection role by requiring developers to demonstrate that sufficient water supplies are available for new subdivisions prior to sale.

Outside of AMAs, new subdivisions must

obtain an adequacy statement from the Department describing the availability of water. Although lots may be sold even if the water supply is inadequate, prospective buyers must be informed of the inadequacy.

### Status

Application-related activity in Fiscal Year 1998 remained high, with the Department receiving 169 applications for Assured Water Supply or water adequacy. Although the number of applications filed remained consistent, the number of lots covered by Certificates of AWS doubled and the number of lots covered by adequacy reports rose by nearly 57 percent.

A major accomplishment was the completion of the designations of AWS for most of the major municipal providers in the state's AMAs. During Fiscal Year 1998, designations were issued to Glendale, Mesa, Chandler, Phoenix, Gilbert, Tempe, Peoria, Tucson and Scottsdale. In addition to these municipalities, a designation was also issued to the Spanish Trail Water Company in the Tucson AMA. The net result of these designations is that these providers, which serve a majority of Arizona residents, have demonstrated long-term availability of water for both their current customers and for future growth. The designations will be reviewed on a yearly basis to ensure the estimates of future supply and that demand remains accurate and continue to support a designation of AWS.

During Fiscal Year 1998, 57 new subdivisions comprising 6,558 lots enrolled in the Central Arizona Groundwater Replenishment District bringing the total since 1995 to 139

subdivisions and 18,421 lots. Eight-two percent of the subdivisions enrolled in the CAGR D this year are in the Phoenix AMA. The majority of these (47 percent of total applications) are in the Pinal County portion of the Phoenix AMA (primarily in Apache Junction). In addition, nine municipal providers (six in the Tucson AMA and three in the Phoenix AMA) have enrolled as member service areas.

Other significant activities and accomplishments in Fiscal Year 1998 included:

- Assisting developers and municipal water providers seeking AWS determinations. Processing applications for Certificates of AWS and Water Adequacy Reports.
- Conducting detailed evaluations of applications for Designation of AWS from cities currently deemed to have an AWS.
- Maintaining an annual report and groundwater allowance accounting mechanism in cooperation with the CAGR D.
- Facilitating local water supply planning issues.
- Assisting providers and municipalities outside of AMAs with adequate water supply concerns.
- Developing draft concepts to be used in establishing AWS Rules tailored to the Santa Cruz AMA.
- Developing and evaluating various policy, procedural, rule and legislative

proposals.

- Assisting Prescott AMA developers and water providers with the certificate and designation application process in accordance with the provisions of S.B. 1124.
- Preparing for the implementation of S.B. 1124 and the process of determining the safe-yield status of the Prescott AMA.

### RECHARGE PROGRAM

In 1986, the Arizona Legislature established the Underground Water Storage and Recovery Program to allow entities with surplus supplies of water to store that water underground and to recover it at a later date for the storer's use. The Recharge Program has two primary goals: 1) the direct use of renewable water over the use of groundwater; and 2) the efficient and cost-effective management of water supplies by allowing the use of underground storage facilities for filtration and distribution of surface water.

#### Status

Recharge application activity continued strong throughout Fiscal Year 1998. A total of 43 permits were issued for the Recharge Program in the Phoenix, Pinal and Tucson AMAs. Significant activities in the Recharge Program included:

- The processing of permit applications for underground storage facilities, groundwater savings facilities, water storage and recovery wells. At the end of Fiscal Year 1998, there were 40 permit applications in various stages of review in all AMAs.

- Continued refinement of policy and development of new procedures to stream-line the application process.
- Continued outreach assistance to several entities and communities interested in participating in recharge activities.
- Support of activities related to the AWBA.
- Preparation of annual report forms, evaluation of completed forms and calculation of long-term storage (recharge) credit balances.

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## COLORADO RIVER MANAGEMENT

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The renewable water supplies of the Colorado River serve seven states and several Indian tribes. The Department works to promote, protect and comprehensively manage Arizona's annual entitlement of 2.8 million acre-feet of Colorado River water. This entitlement is Arizona's water supply for future growth and is critical to the state's progressive water management policies.

The United States, through the United States Bureau of Reclamation, operates the Colorado River reservoir system to deliver water from the Colorado River to users in the Lower Basin. The Department coordinates with the Secretary of Interior on all matters related to the Colorado River, including recommending allocations and contracts for Colorado River water, consulting with the United States Department of the Interior regarding the Colorado River Annual Operating Plan and representing the State of Arizona in forums and work groups that address Colorado River issues. The Department works cooperatively with representatives of the other six Colorado River Basin states, various federal agencies, Indian tribes, the United States Congress, local governments and water users within Arizona. The activities generally require engineering, legal, environmental and economic expertise.

The major activities of the Department involving the Colorado River in Fiscal Year 1998 included the following:

- Served on and provided technical support to several interstate and interagency committees, including the Colorado River Management Work Group for the Annual Operating Plan,

Seven Basin States/Ten Tribes Committee, Lower Colorado River Multi-Species Conservation Program (MSCP) Steering Committee and Work Group, Colorado River Basin Salinity Control Forum and Work Group, Lower Colorado River Program Management Work Group and the Glen Canyon Adaptive Management Work Group Federal Advisory Committee.

- The Department conferred with several entities regarding contracts for mainstream Colorado River water including the Arizona State Land Department, the Arizona State Parks Board, Citizens' Utility, the Town of Parker, the Town of Quartzite, Crystal Beach Water Company, Metropolitan Water Improvement District and several private parties.
- Reviewed technical reports and studies of the Colorado River and its tributaries including the California plan to reduce its Colorado River water demand to 4.4 million acre-feet. The Department also began the formal review of the USBR proposed Lower Colorado River Accounting System.
- Produced Geographic Information System (GIS) maps showing individual farm and irrigation district boundaries and municipal water provider and service area boundaries, as well as produced Colorado River and CAP contract area maps. The Department started an inventory of water use along the Colorado River to

determine the most current information on the location of diversions and amounts of water uses. The information will be used to advise the public and develop state policy with regard to future federal actions and long-term water allocation issues.

- As part of the Department's overall analysis of water supply and uses, a model of the Colorado River system is operated to test different surplus and shortage strategies to determine the impact of reservoir operations on Arizona's supply of Colorado River water. The model results were used to analyze California's water use reduction plan, amounts of water needed to be banked by the AWBA and alternative proposals for allocation of CAP water.
- Prepared information for the AWBA Study Commission regarding the long-term Colorado River water supply availability, priorities of water use, interstate marketing issues and Indian and rural county water issues. A report from the Study Commission on the issue areas was completed in November 1997. The final report was due November 1998.
- In response to the 1994 designation of critical habitat for the four listed "big river" fishes of the Colorado River Basin, the Department continued participation in the Lower Colorado River Multi-Species Conservation Plan (MSCP) Steering Committee and Work Group. The MSCP Steering Committee retained consultant services for development of the MSCP and group facilitation services. In

Fiscal Year 1998, the Steering Committee agreed to fund interim conservation measures (while the MSCP is being developed) which are targeted to provide immediate benefits to the Southwestern Willow Flycatcher, Razorback Sucker and Bonytail. The Department co-sponsored a week-long tour of habitat areas along the lower Colorado River.

- The Department continued participation in the public process which has resulted in the United States Fish and Wildlife Service's (USFWS) Final Biological Opinion regarding the USBR's Lower Colorado River Operations and Maintenance Activities in the lower Colorado Region. Although the Final Biological Opinion resulted in a finding of jeopardy for the Southwestern Willow Flycatcher, Razorback Sucker and Bonytail, ongoing implementation of the Biological Opinion's Reasonable and Prudent Alternative will alleviate jeopardy to the species. This process will involve the MSCP Steering Committee and others in the lower Colorado Region.
- A representative of the Department continues to serve on the Glen Canyon Dam Adaptive Management Work Group Federal Advisory Committee. Based upon the Record of Decision signed by the Secretary, at the conclusion of the Glen Canyon Dam Environmental Impact Statement process, the Adaptive Management Work Group is charged with developing recommendations regarding the management of Glen Canyon Dam and the downstream

resources in the Glen, Marble and Grand Canyon reaches of the Colorado River.

- The Department participated in the tri-state discussions, involving Arizona, California and Nevada, concerning the future management of water resources in the lower Colorado River Basin. The Department also participated in the technical subcommittee of this group.
- Department staff participated in discussions regarding the apportionment of the water entitlement within the Yuma Mesa Division of the Gila Project.

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## DAM SAFETY SECTION

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The Department monitors non-federal dams within Arizona to reduce loss of life and damage to property. Responsibilities of the Dam Safety Section include conducting safety inspections of dams and monitoring the construction of dams.

dams (six completed).

- Investigation and site inspection at 12 structures constructed not subject to the state's regulation.

### SAFETY OF DAMS

The Department oversees the design, construction, operation and maintenance of non-federal dams in Arizona, excluding those permits for mine tailing dams. Dams under state jurisdiction are those 25 feet or more in height or with a storage capacity of more than 50 acre-feet.

At the end of Fiscal Year 1998, there were 215 dams under state jurisdiction. During Fiscal Year 1998, the Department activities included the following:

- Site inspections related to applications, construction monitoring and operations for dams totaled 264. This included 67 inspections made under emergency conditions.
- Detailed review of 13 applications to construct new dams (two approved).
- Detailed review of six applications to repair existing safe dams (four approved).
- Detailed review of five applications to repair existing unsafe dams.
- Detailed review of four applications to repair existing unregistered dams (one approved).
- Monitored the construction of eight

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## FLOOD MITIGATION SECTION

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### Flood Mitigation

The Department serves to assist Arizona's communities in the participation in the National Flood Insurance Program (NFIP) and to assist communities with any problems that may arise as a result of their participation in the NFIP. Department activities in this area during Fiscal Year 1998 included:

- Provided assistance to the City of Sierra Vista to correct and update their Flood Insurance Rate Maps (FIRMs).
- Arranged with the Federal Emergency Management Agency (FEMA) to implement mapping for the initial reach of Bouse Wash in LaPaz County, through the community of Bouse, to allow new development to occur without the fear of damage to life and property.
- Provided a workshop for the Town of Quartzsite staff to explain their FIRMs and attended their council meeting to answer questions from the council and the public.
- Conducted workshops on floodplain management and the NFIP for public officials in three areas of the state.
- Arranged for new Flood Insurance Studies in Gila County and Globe.
- Prepared and distributed four floodplain management newsletters for local officials.
- Reviewed 22 flood insurance studies for communities for revisions and additions to FIRMs.
- Visited communities to assist with floodplain management activities and ensure their understanding of the NFIP and Arizona Statutes.
- Participated in meetings at Maricopa County Flood Control District regarding the Tres Rios project.
- Met with study contractors and communities regarding floodplain mapping issues.
- Prepared and distributed revisions to the Hand Book for Arizona Communities on Floodplain Management and the National Flood Insurance Program.
- Worked with the new Federal Emergency Management Agency representative to resolve issues with mapping of some areas of Arizona.
- Worked with the City of Nogales and Santa Cruz County to urge development of natural hazard mitigation plan.
- Met with "Friends of the Santa Cruz" to suggest solutions to perceived problems along the river during El Niño storms.
- Provided technical program assistance to private citizens with concerns about floodplain



development, El Niño and flood insurance.

- Prepared and distributed a major revision of State Stand and Flood Study Documentation.
- Conducted training at four locations in the state for more than 100 floodplain managers and engineers on the use of Floodplain and Floodway Delineation in Riverine Environments.

funding 75 percent of the project and ADWR and other state and local sponsors cost-sharing the remaining 25 percent.

### **Flood Warning**

In 1994, the Legislature authorized the Department to develop flood warning systems throughout the state. During Fiscal Year 1998, the Department co-funded and participated in the installation of five new flood warning gages for the Yavapai County Flood Control District, two new rain gages and a repeater for the Navajo County Flood Control District and purchased and installed three new rain gages in the Sedona Oak Creek System.

The Department, in conjunction with the United States Corps of Engineers (COE), is in the early stages of contracting the construction of the Arizona Statewide Flood Warning System. This system will consist of a high bandwidth computer/communication network and infrastructure linked to the three major National Weather Service Hubs (Phoenix, Flagstaff and Tucson) which serve Arizona and will branch out to all of Arizona's 15 county emergency management offices.

The Arizona Flood Warning System will also include the installation of new stream and rain gages throughout the state. The project is expected to exceed \$1.5 million with the COE

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## GROUNDWATER FILINGS LICENSING AND PERMITTING

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The Department processes all surface water, groundwater and adjudication filings and well drilling licenses. Department staff assists the public in filing water rights documents, responds to information requests and collects permit and groundwater withdrawal fees. Groundwater and well drilling actions during Fiscal Year 1998 included:

- Issued approvals to drill approximately 7,000 new wells and updated ownership of approximately 1,500 existing wells.
- Issued permits for approximately 26 projects to recharge or store groundwater.
- Issued approximately 319 well-driller licenses and/or renewals.
- Issued approximately 42 new groundwater withdrawal permits.
- Received 31 new Statements of Claim of Right.
- Received three new claims for Stockpond Rights.
- Processed 52 amendments to claims for Stockpond Rights.
- Issued one Certificate of Stockpond Right.

Surface water actions during Fiscal Year 1998 are as follows:

- Received seven new applications for Permit to Appropriate.
- Issued six Permits to Appropriate.
- Forty Certificates of Water Rights were issued, reissued or revised.
- Received 922 requests for assignment; 551 requests for assignment were completed.

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## STATEWIDE WATER RESOURCE PLANNING

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Though most of the Department's regulatory focus is on the five AMAs, the Department assists with water resource planning statewide.

In Fiscal Year 1998, the Department focused a substantial amount of its planning assistance on areas in the state that have expanding populations, limited groundwater resources and unique environmental features. Some of these areas include the Verde River Basin and San Pedro River Basin. The Department assisted citizen organizations and local governments by providing technical information, analysis and advice regarding water issues.

**Verde Watershed** The Department continues to provide technical assistance in the Verde Watershed. The Upper Verde Study concept is the result of discussions between agencies that have resource issues associated with the impacts of groundwater withdrawals, surface water diversions and current land management practices on the quality and the flows of the Verde River. The Department will provide technical data and analysis on this project, with the assistance of the Kaibab Forest, Arizona Department of Environmental Quality, the United States Geological Survey and Salt River Project.

**Upper San Pedro Groundwater Basin-** Last year, the Department participated in the Cochise County Technical Committee by developing a groundwater model for a portion of the area. The Upper San Pedro Partnership (Partnership) was formed to utilize all of the knowledge gained in the work accomplished by the Technical Committee. The Partnership will evaluate, recommend and implement projects in the Sierra Vista Subwatershed that

will assist in the management of the water resources in this area.

**San Pedro Groundwater Basin** Most of the work undertaken by the San Pedro Technical Committee is near completion. The Department provided on-going technical assistance to the San Pedro Technical Committee. The Department continues to attend and monitor bi-monthly meetings and continues to provide support to Cochise County administratively.

**Northern Gila County Water Plan (NGCWP)** The NGCWP was conceived to identify the long-term water requirements in northern Gila County and to evaluate the various water supply options available to develop a water supply plan for the towns of Payson, Pine and Strawberry. A multi-agency group was formed, made up of staff from the Department, ADEQ, USBR, USGS and the US Department of Agriculture. This group produced a report which identified the water supply problems in the area, as wells as the demand analysis, potential new supply sources, environmental and institutional issues and potential funding sources. The Department is continuing to attend meetings with this multi-agency group.

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## HYDROLOGY SUPPORT

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The Department's team of hydrologists provide technical support to the Department, including statewide water resources data collection and analysis and maintenance of the state's Groundwater Site Inventory (GWSI) database.

**Groundwater Modeling** The Modeling Section develops numerical groundwater flow models that approximate regional groundwater movement for various areas in the state. Most modeling efforts have been concentrated in AMAs, however, several other sensitive areas in the state have also been modeled. Models have been completed for the Phoenix, Pinal and Prescott AMAs. Models are currently under development for the Tucson and Santa Cruz AMAs.

The Department has completed two smaller modeling projects within the Phoenix AMA. These are the Phoenix-Goodyear Airport study and Motorola-52<sup>nd</sup> Street (also called the Central Phoenix model) model.

Besides work done within the two models within the AMAs, models have been completed for other areas in the state. The Yuma area groundwater flow model was prepared in cooperation with the Yuma County Flood Control District and the USBR. The Upper San Pedro model was developed to help understand how water use would affect surface water flows within the San Pedro Riparian National Conservation Area which is located in the Upper San Pedro Basin.

The section uses the USGS' modeling software called MODFLOW, a three-dimensional finite element numerical code, to simulate groundwater flow. MODFLOW uses

a modular approach to designing a model with separate modules, or packages, used to simulate different hydrologic conditions. As a result, a model can be designed to be as simple or as complex as the groundwater system it is trying to approximate.

After a model is successfully calibrated and documented in a modeling report, it can then be used as a planning tool by water resource managers. Modelers, working with the planners, develop model data sets that reflect future conditions that the planners believe may exist, i.e., future pumping stresses, recharge projects, changing water use patterns, and urban growth patterns. The result of future scenario runs can then be viewed and evaluated as to their potential impacts in the modeled area.

This approach has been used with both the Salt River Valley (Phoenix) groundwater flow model and the Yuma area model. The Salt River Valley model has been used to project the affect of current urbanization trends and water use assumptions on regional water level elevations out to the year 2030. The Yuma area model was used to test what effect lining irrigation canals and increasing drainage well pumpage would have on localized high water table levels in urbanized sections of Yuma Valley.

**Special Studies** - During Fiscal Year 1998, Department hydrologists performed several special studies included the following:

- Assistance in developing groundwater flow model of the Santa Cruz AMA.

- Assistance in hydrologic impact analysis of various groundwater recharge facilities.
- Development of Land Subsidence and Aquifer Storage Monitoring Program for the Phoenix, Tucson and Pinal AMAs.
- Technical assistance with the TMP for the AMAs.

**Basic Data Collection** The Department collects groundwater data from wells and springs throughout the state. Data are evaluated, reduced, quality assured and made available to the public and other state and federal agencies.

The data collection program is in its 58th year of cooperation with the USGS. Currently the Department collects virtually all the groundwater data in the state, while the USGS is principally responsible for surface water data collection.

In Fiscal Year 1998, Department hydrologists measured water levels in the Phoenix AMA, Ranegras Plain Basin and the Douglas INA. Hydrology also collected water quality samples in the Tonto, Agua Fria, Hassayampa Basins and Verde Canyon Subbasin. Discharge measurements were performed on selected wells within the AMAs and INAs and in the Ranegras, Butler and lower Gila Basins. As part of the annual monitoring program, approximately 1,300 water levels were measured, and approximately 130 water quality samples were collected from wells throughout the state. Hydrologic Map Series report number 31, detailing general groundwater conditions in the upper San Pedro Basin, was released in December.

**Recharge/Surface Water Section** The Recharge/Surface Water Section of the Hydrology Division is responsible for the technical hydrologic review of all recharge applications, instream flow studies, groundwater/surface water appropriability investigations and Arizona Water Protection Fund projects. Some of the highlights for Fiscal Year 1998 are as follows:

- Participation at applicant technical recharge meetings, including field visits.
- Technical review of recharge hydrologic reports including running of groundwater models of the proposed projects and drafting of permits.
- Review of AMA augmentation grants relating to recharge projects.
- Preparation of the draft recharge recovery application.
- Participation on the recharge policy and process and procedure committees.
- Technical review of instream flow applications and reports. This includes field investigations and technical training.
- Conducted groundwater/surface water appropriability investigations including review of the USGS, Colorado River accounting surface report.
- Hydrologic technical support to the AWPf application and project review process. Review of all

deliverables containing hydrologic components.

- Lead in the AWPf Sonoita Creek surface water seepage run and report.

### WATER RESOURCES SECTION

The Water Resources Section of the Hydrology Division provides technical support for the Assured and Adequate Water Supply Program. This program provides consumer protection by requiring developers to demonstrate that sufficient water supplies are available for new subdivisions. Department hydrologists review Assured and Adequate Water Supply Program applications and perform related hydrologic analyses. Prior to the recording of final plats and the sale of large parcels of land, staff prepare reports of known domestic water supply conditions for submission to the ADRE.

During Fiscal Year 1998, staff completed 188 reviews:

- Seven Analyses of Assured Water Supply (for master-planned communities in AMAs)
- 57 Water Adequacy Reports (required for new subdivisions outside of AMAs)
- 77 Certificates of Assured Water Supply (CAWS). These are required for subdivided land in AMAs not served by a designated provider.
- One Designation of Adequate Water Supply. This is for a water provider to demonstrate an adequate water supply for an entire water service area.

- Five Water Availability Letters . This allows a developer within an AMA not presently applying for a CAWS to submit evidence of water availability to simplify the future CAWS process.

- 41 Water Availability Reports for unsubdivided land. This is required statewide for land divisions of parcels larger than 36 acres.

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## COMPUTER SUPPORT

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During Fiscal Year 1998, the Department moved into the final phase of a three-year project designed to replace a seriously outdated mainframe computer, network systems and business applications.

**Application Development** Reflecting the Department's emphasis on improving access to our data for both staff and outside customers, the Department has transitioned five of the six major applications to a relational data base\client-server environment. All completed systems have provided staff with full access to the detailed water rights data needed to perform complex analysis and investigations quickly and easily.

**Geographic Information Systems (GIS)** In Fiscal Year 1998, the Department began setting the groundwork to put GIS tools on staff desktops. A significant number of staff are now able to create their own graphics and maps to aid in planning, analysis and investigations. By doing so, we have become more responsive to requests from both inside and outside customers. Our level of accuracy and efficiency has also increased in regards to our spatial data.

**Network Support/Customer Support Help Desk** During Fiscal Year 1998, the Department has continued to perform periodic upgrades to our operating systems, network infrastructure and desktop hardware and software. Stable network and communication systems provide staff and customers fast, reliable access to water-related data.

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## ARIZONA WATER BANKING AUTHORITY SUPPORT

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For more than 70 years, Arizona leaders have worked to ensure that Arizona's communities have dependable long-term water supplies. In continuing with this commitment, the Arizona State Legislature created the AWBA in 1996 to ensure Arizona's full use of its 2.8 million acre-feet of Colorado River water supply.

Until the AWBA was created, Arizona did not use its full entitlement of Colorado River water. Without the AWBA, Arizona would not have used its full allocation until the year 2030.

During that interim period, the accumulated amount of water left in the Colorado River would have amounted to approximately 14 million acre-feet. Most of that water would have gone to southern California.

A five-person Authority directs the activities of the AWBA. The Director of the Department chairs the AWBA and members include the President of the Board of the CAWCD and three persons appointed by the Governor. By law, of these appointments, one person represents Central Arizona Project Municipal & Industrial water users, one person represents Colorado River water users along the Colorado River, and one person must be knowledgeable in water resource management issues. Additionally, the Arizona State Senate and House of Representatives each appoints one non-voting *ex officio* member to the AWBA.

During Fiscal Year 1998, the Department provided administrative, technical and legal support to the AWBA. The AWBA released an Annual Report to the Governor and the Arizona State Legislature on July 1, 1998.



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## ARIZONA WATER PROTECTION FUND SUPPORT

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The 1994 Arizona Legislature established the AWPf and Commission to provide money in the form of grants for projects that maintain, enhance or restore rivers and streams and associated riparian resources. This includes fish and wildlife species that are dependent on these resources.

The primary source of program funds is an annual appropriation from the State General Fund. The program is administered by a 15-member commission appointed by the Governor, Senate President, Speaker of the House, the CAWCD and the Intertribal Council. Additionally, there are four non-voting, ex-officio commission members: The Director of the Department, the Arizona State Land Commissioner, the Chair of the Senate Natural Resources Committee and the Chair of the House of Representatives Natural Resources Committee. Commission members represent a wide variety of interests, and some have technical expertise in hydrology, biology or riparian ecology.

The Department is directed by statute to provide legal, technical and administrative support to the Commission. Also under the statute, the State Land Department is directed to provide administrative support to the State's 31 NRCDs.

By statute the Commission is directed to give priority to projects that include matching money from other sources, provide long-term project maintenance and include broad-based public support. This year the Commission completed a triennial public review process. From the public process, perennial and intermittent rivers and streams were identified

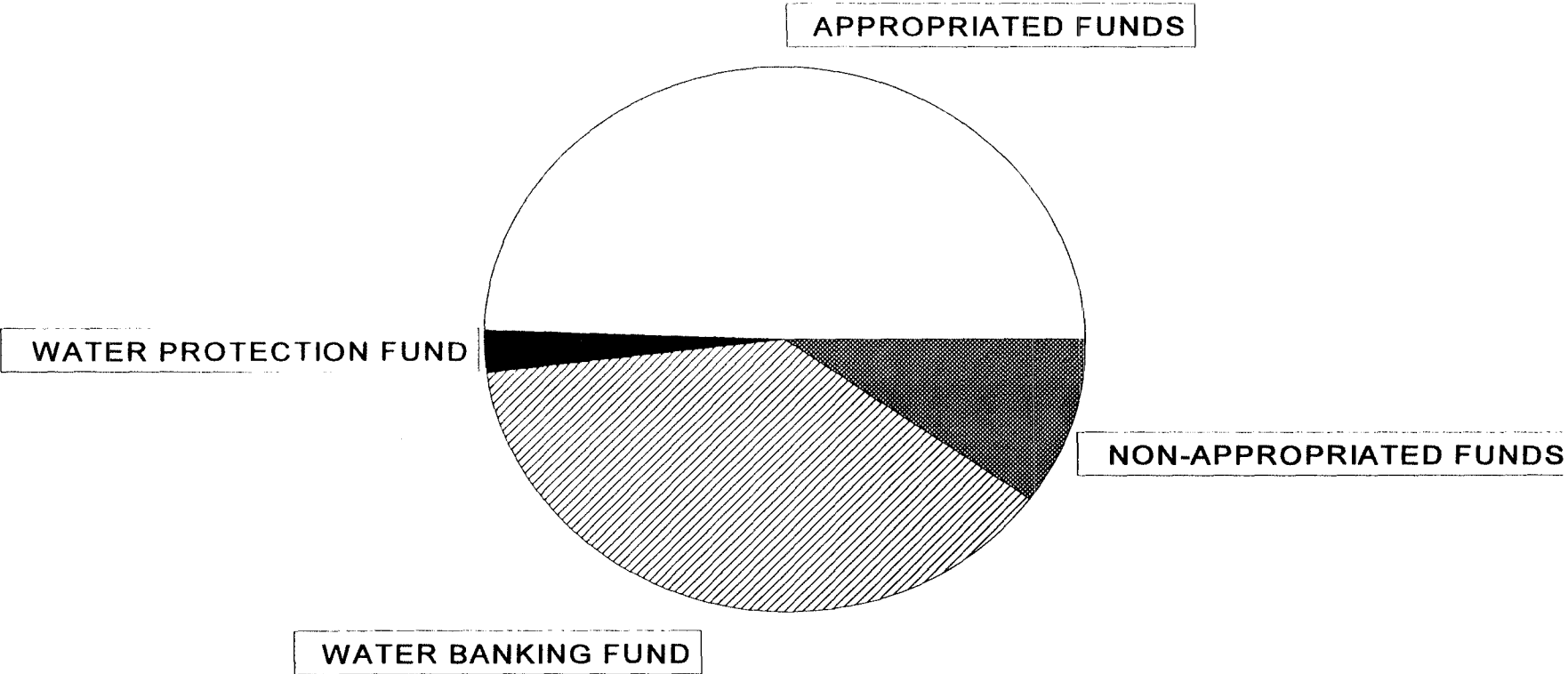
as geographic areas of priority. The public also favor projects that include public/private partnerships. Funding categories include: 1) capital projects, water acquisition and other measures, 2) water conservation and 3) research and data collection. Water conservation and research projects are limited to five percent each of the available annual funding.

The Commission holds bi-monthly public meetings at locations throughout the state. Those wishing to address the Commission do not need to request permission in advance. Meetings begin and end with a "call to the public." This time is set aside to allow individuals and organizations the opportunity to address the Commission on riparian issues of local concern.

Over the past three funding cycles, the Commission has selected 72 projects for funding, with a total project cost of \$14.6 million. These projects are located in every county in Arizona. Any person or organization may apply for funding. Successful applicants include municipalities, Indian tribes, agencies, universities, NRCDs, non-profit organizations and individuals.

# DEPT OF WATER RESOURCES

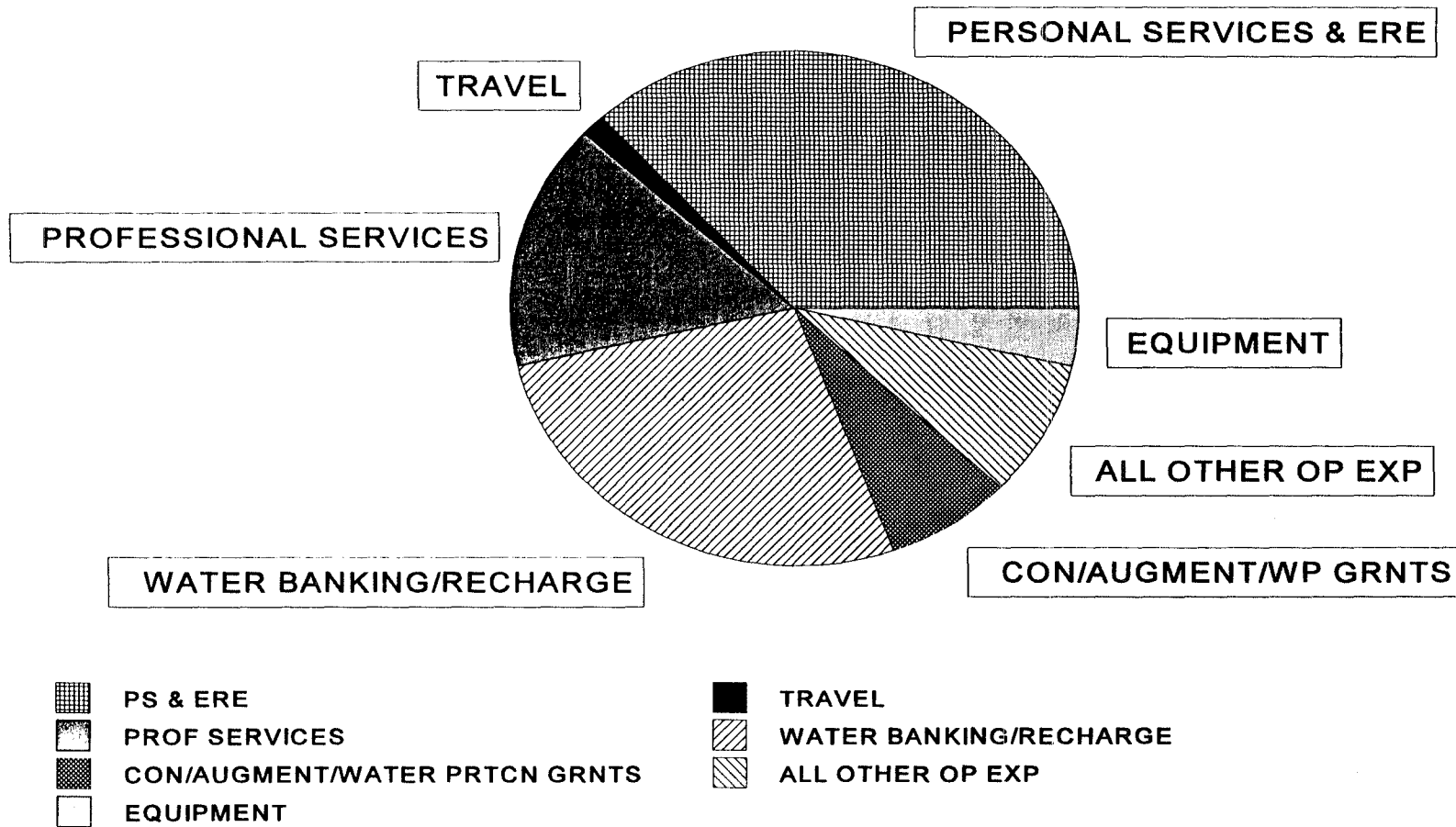
## SOURCE OF FUNDS



- APPROPRIATED FUNDS
- ▨ WATER BANKING FUND
- WATER PROTECTION FUND
- ▩ NON-APPROPRIATED FUNDS

# DEPT OF WATER RESOURCES

## EXPENDITURE OF FUNDS



## ABBREVIATION INDEX

<b>ADEQ</b>	Arizona Department of Environmental Quality
<b>AF</b>	Acre-Feet
<b>AMA</b>	Active Management Area
<b>ADRE</b>	Arizona Department of Real Estate
<b>AMWUA</b>	Arizona Municipal Water Users Association
<b>A.R.S.</b>	Arizona Revised Statutes
<b>AWBA</b>	Arizona Water Banking Authority
<b>AWC</b>	Arizona Water Company
<b>AWPF</b>	Arizona Water Protection Fund
<b>AWS</b>	Assured Water Supply
<b>CAGRD</b>	Central Arizona Groundwater Replenishment District
<b>CAP</b>	Central Arizona Project
<b>CAWCD</b>	Central Arizona Water Conservation District
<b>CAWS</b>	Certificate of Assured Water Supply
<b>CEC</b>	Commission for Environmental Cooperation
<b>Code</b>	Groundwater Management Code
<b>CMID</b>	Cortaro-Marana Irrigation District
<b>COE</b>	United States Corps of Engineers
<b>CVID</b>	Chino Valley Irrigation District
<b>Department</b>	Arizona Department of Water Resources
<b>ESA</b>	Endangered Species Act
<b>FEMA</b>	Federal Emergency Management Agency
<b>FIRMs</b>	Flood Insurance Rate Maps
<b>GIS</b>	Geographic Information Systems
<b>GRRC</b>	Governor's Regulatory Review Council
<b>GUAC</b>	Groundwater Users Advisory Council
<b>GWSI</b>	Groundwater Site Inventory
<b>HSR</b>	Hydrographic Survey Reports
<b>ICMs</b>	Interim Conservation Methods
<b>IGFR</b>	Irrigation Grandfathered Right
<b>IMS</b>	Irrigation Management Service
<b>INA</b>	Irrigation Non-Expansion Area
<b>IPAG</b>	Institutional and Policy Advisory Group
<b>M&amp;I</b>	Municipal and Industrial
<b>MSCP</b>	Multi-Species Conservation Program

<b>NAFTA</b>	North American Free Trade Agreement
<b>NFIP</b>	National Flood Insurance Program
<b>NGCWP</b>	Northern Gila County Water Plan
<b>NPCCP</b>	Non-Per Capita Conservation Program
<b>NRCDD</b>	Natural Resources Conservation District
<b>OAH</b>	Office of Administrative Hearings
<b>PCWAA</b>	Pinal County Water Augmentation Authority
<b>REPP</b>	Regional Effluent Planning Partnership
<b>RRP</b>	Regional Recharge Plan
<b>SAWRSA</b>	Southern Arizona Water Rights Settlement Act
<b>Secretary</b>	Secretary of the Interior
<b>Southwest Center</b>	Southwest Center for Biological Diversity
<b>SRP</b>	Salt River Project
<b>SMP</b>	Second Management Plan
<b>TMP</b>	Third Management Plan
<b>UAAP</b>	Uniform Administrative Appeal Procedure
<b>USBR</b>	United States Bureau of Reclamation
<b>USCWUG</b>	Upper Santa Cruz Water Users Group
<b>USFWS</b>	United States Fish and Wildlife Service
<b>USGS</b>	United States Geological Society
<b>WQARF</b>	Water Quality Assurance Revolving Fund