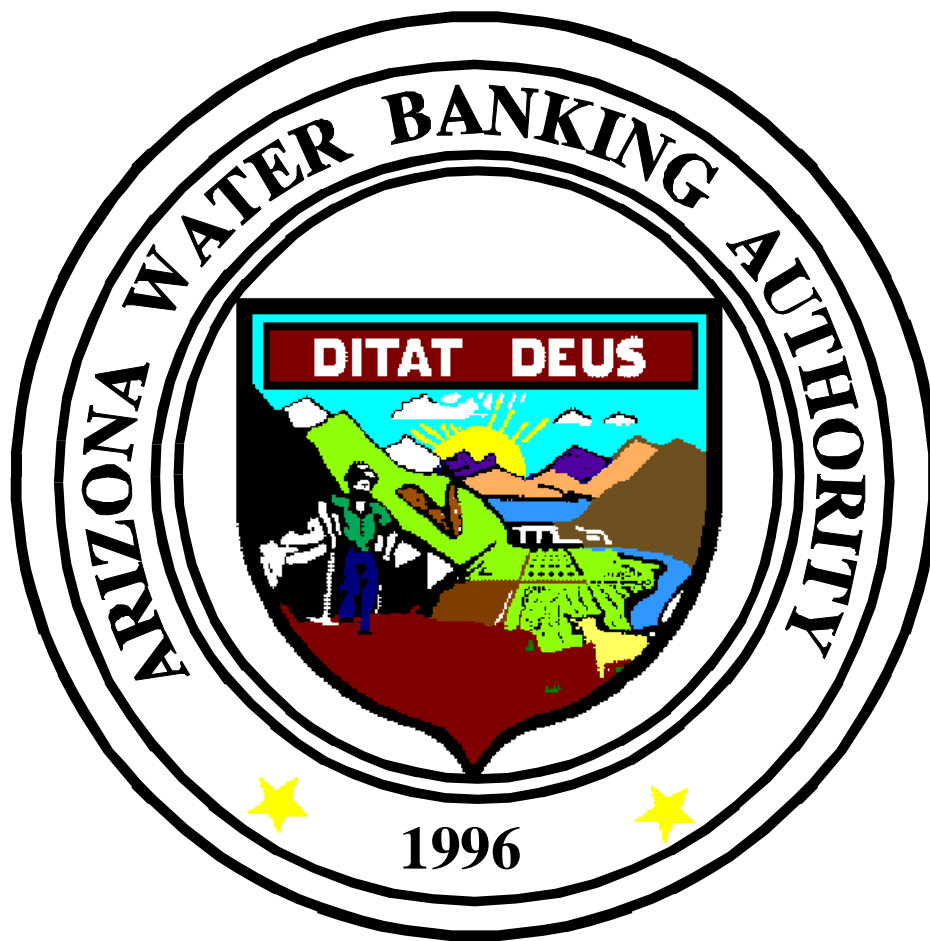


ARIZONA WATER BANKING AUTHORITY

1998 ANNUAL PLAN OF OPERATION



Rita P. Pearson, Chairman

January 1, 1998

INTRODUCTION

The Arizona Water Banking Authority (Authority) was created to store unused Arizona Colorado River entitlement in western, central and/or southern Arizona to develop long-term storage credits to: (1) firm existing water supplies for municipal users during Colorado River shortages or Central Arizona Project (CAP) service interruptions; (2) help meet the water management objectives of the Arizona Groundwater Code; and (3) assist in the settlement of American Indian water rights claims. The Authority is required by statute to approve an annual Plan of Operations by January 1 of each year.

The Plan of Operation is intended to govern the operations of the Authority over the course of the entire calendar year. During the course of the year, changing circumstances may present limitations or provide new opportunities not contemplated in the adopted Plan, which could affect the overall delivery projections. In such circumstances, the Authority may choose to modify its adopted Plan. If such modifications are required, the proposed modifications will be discussed and approved at a public meeting of the Authority.

The Authority recognizes that day-to-day adjustments in the normal operations of the CAP or the individual storage facilities caused by maintenance and fluctuations in the weather may affect the actual monthly deliveries made on behalf of the Authority. However, if the adjustments do not impact the overall annual delivery projections contained in the Plan, those adjustments will not be deemed modifications to the Plan and will be addressed by staff and reported to the Authority on an as-needed basis.

1997 PLAN OF OPERATION

In its first year of operations, the Authority recharged approximately 331,000 acre feet of Colorado River water pushing Arizona's total use of Colorado River water close to its normal year entitlement of 2.8 million acre feet (See Figure 1).

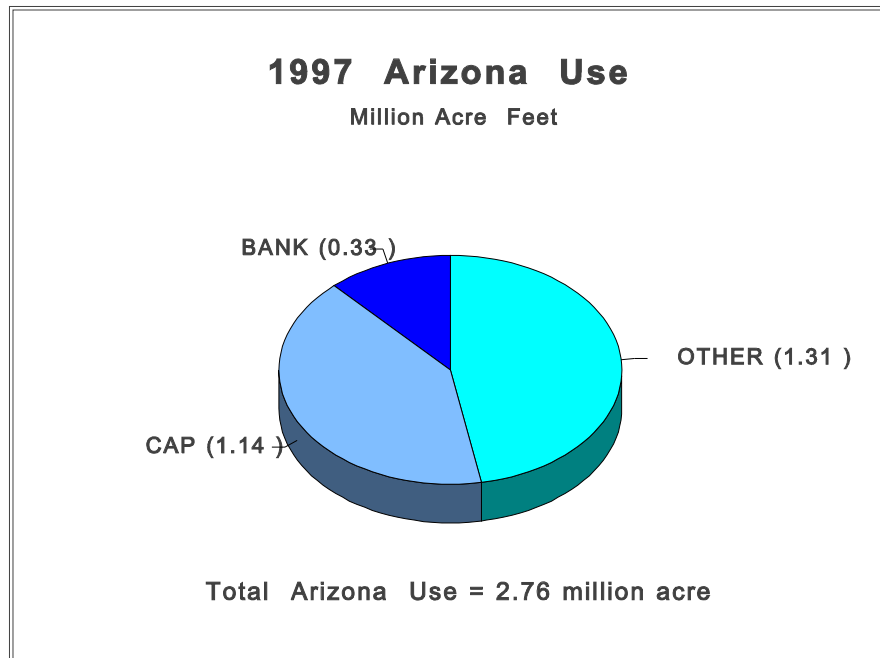


Figure 1

Because the Secretary of the Interior declared that the Colorado River was in surplus for 1997, the increased use by Arizona did not impact the other Lower Basin States' uses. Total estimated use of Colorado River water in the Lower Basin exceeded 8.2 million acre feet in 1997 (see Figure 2).

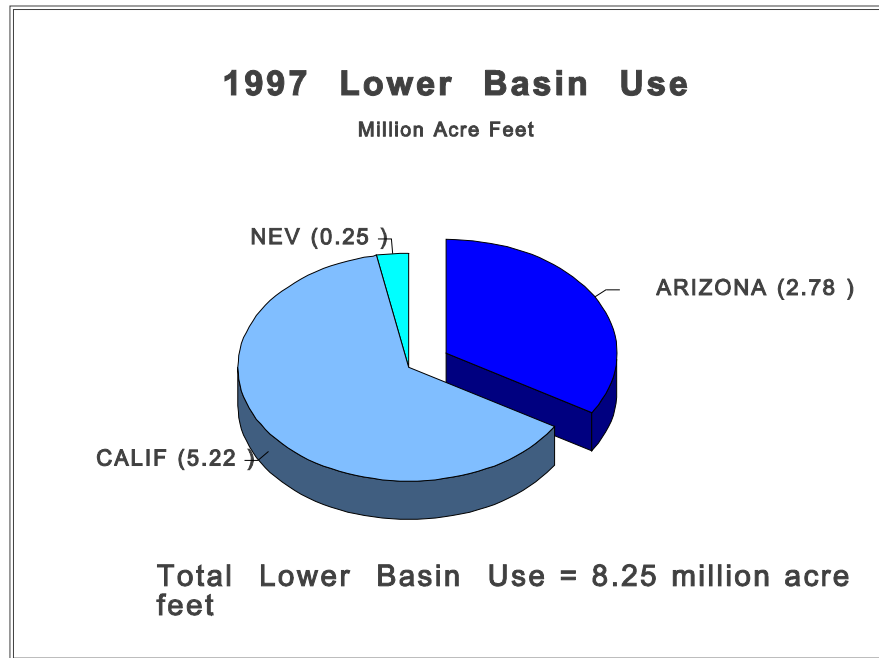


Figure 2

The Authority utilized both Underground Storage Facilities (USF) and Groundwater Saving Facilities (GSF) to store water in 1997. Table 1 lists the Authority's recharge partners, the amount of the Authority's Water Storage Permits, and the amount recharged at each facility in 1997.

Table 1

AMA	Facility	Type	Annual Capacity	Amount Recharged
Phoenix	GRUSP (SRP)	USF	200,000 af	45,400 af
	Queen Creek ID	GSF	28,000 af	16,000 af
	Chandler Heights ID	GSF	3,000 af	0
	New Magma IDD	GSF	54,000 af	47,200 af
	RWCD	GSF	100,000 af	46,500 af
	MWD	GSF	18,000 af	9,500 af
Pinal	MSIDD	GSF	120,000 af	65,000 af
	CAIDD	GSF	110,000 af	45,000 af
Tucson	Hohokam ID	GSF	55,000 af	52,800 af
	Avra Valley (CAP)	USF	8,000 af	2,200 af
	CAVSARP (Tucson)	USF	10,000 af	1,000 af
Total			706,000 af	330,600 af

1998 PLAN OF OPERATION

When developing the 1998 Plan, four critical factors were evaluated: (1) the amount of unused water available to the Authority for delivery, (2) the CAP capacity available to the Authority for the delivery of unused water, (3) the funds available and the costs required to deliver the unused water, and (4) the capacity available for use by the Authority at the various recharge facilities.

For water year 1998, the Secretary of the Interior has declared that the Colorado River is in a surplus condition. This means that surplus water would be available to the Authority as a source of unused water. Therefore, water availability will not be a limiting factor for the Authority in 1998.

CAP's 1998 operating plan accommodates the delivery of approximately 1.45 million acre feet of water. However, the plan only delivers approximately one million acre feet to its subcontractors, which leaves approximately 450,000 acre feet of capacity available for the Authority. Based on this available capacity, CAP's operations will not be a limiting factor for the Authority in 1998.

The funding available to the Authority from its three funding sources (taxes, withdrawal fees, and the general fund) to pay for the delivery of water in 1998 will be approximately \$13.9 million including the carryover from the previous years. Given the costs associated with the delivery of water and the fact that the GSF operators continue to pay \$21 of that cost when the water is delivered to their facilities, the \$13.9 million should be adequate to fund the Plan and not be a limiting factor in 1998. For more information about the cost of the plan, see the section on Pricing later in this report.

To assist in developing the 1998 Plan, each facility operator submitted an annual delivery schedule to CAP. (CAP scheduled the Authority's deliveries for those GSFs they will be operating.) The CAP staff utilized these schedules to compile an annual schedule for the CAP, including municipal and industrial (M&I), Indian, incentive recharge, agricultural pool, and Authority water. As discussed previously, this integrated schedule was developed to conform to a 1.45 million acre feet delivery year. Concurrently, the Authority staff met with the facility operators to discuss their delivery schedules and confirm their continued interest in participating with the Authority. As a result of these discussions it was determined that while there is substantial permitted recharge capacity not all that capacity is available to the Authority. In the case of some of the GSFs, the delivery cost was a limiting factor, and for others their operations limited their participation. For the USFs, operational constraints or previous commitments to other partners limited the availability to the Authority. For 1998, available recharge capacity was the constraining factor in the development of the Plan.

Based on its adopted Plan, the Authority anticipates recharging approximately 360,000 acre feet of Colorado River in 1998. The Plan was developed utilizing facilities that have already been permitted or are anticipated to be permitted in 1998 and are located in Maricopa, Pinal, and Pima Counties. The Plan attempts to optimize, on a monthly basis, the delivery of Colorado River water to meet the Authority's objectives. However, the Plan remains flexible, and if additional recharge capacity can be identified and funding remains available, the Plan can be modified in the future to include additional facilities.

Based on projected uses, Arizona's use of Colorado River water in 1998 will be 2.70 million acre feet (see Figure 3), which is less than Arizona's 1997 use. However, the overall Lower Basin use is projected to continue at approximately 8.2 million acre feet.

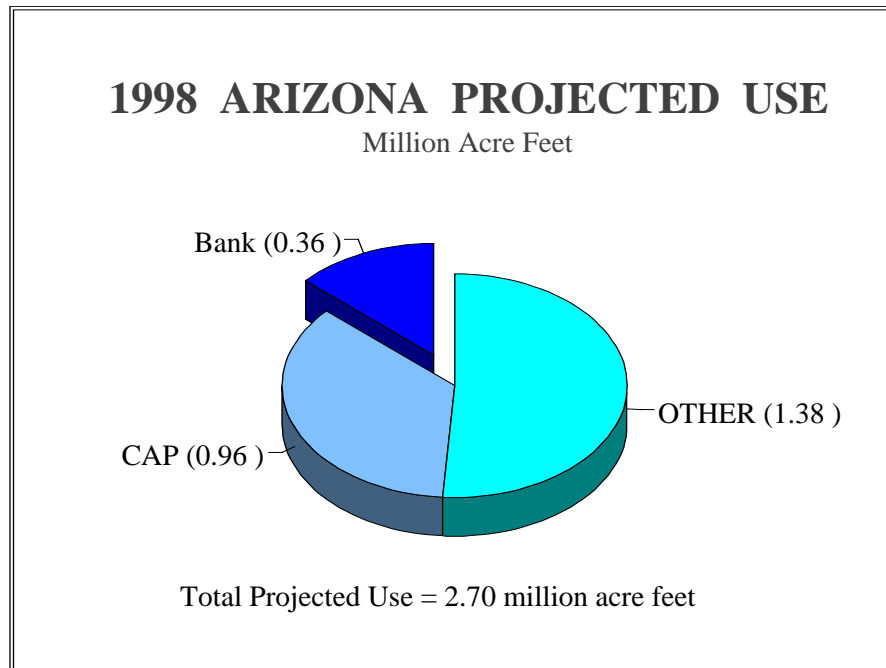


Figure 3

Table 2 shows the Authority's 1998 delivery schedule. The first line or section of this table is an estimate of CAP's deliveries to its M&I, agricultural, incentive recharge, and Indian customers. These deliveries have a scheduling priority over the Authority's deliveries. CAP has the capability to deliver approximately 180,000 acre feet of water in a given month.

The second section is the capacity available to the Authority. This capacity is determined by subtracting customer deliveries from the available capacity. The first and second sections do not always total 180,000 acre feet/month because of unique situation such as filling of Lake Pleasant in the winter months, and deliveries to the western portion of the aqueduct and New Waddell Dam releases to the aqueduct in the summer months. During the fall and winter months the capacity available to Authority is constrained because CAP is making deliveries to Lake Pleasant, which are not reflected in the first section.

The third section represents the Authority's 1998 Plan of Operation. The Authority's partners for 1998 and the amount of water scheduled to be recharged is identified. The second column of this section identifies the permitted capacities of each facility and the amount of that capacity which is available to Authority in 1998. The fourth section lists the CAP capacity remaining after the Authority's deliveries are scheduled. The amount in parentheses in the months of April, July, and November represents an over-commitment of capacity in those months. The Authority will work closely with the CAP and its partners in an attempt to meet the scheduled deliveries during those months.

Table 2
ARIZONA WATER BANK AUTHORITY
Water Delivery Schedule
Calendar Year 1998
(ACRE-FEET)

	January	February	March	April	May	June	July	August	September	October	November	December	Total
Estimated Total CAP Deliveries + Losses : (M&I, Indian, Ag Pools 1 & 2, Incentive Recharge)	29,000	33,000	91,000	100,000	115,000	147,000	185,000	113,000	56,000	42,000	27,000	26,000	964,000
Available Excess CAP Capacity for AWBA :	42,000	24,000	41,000	29,000	51,000	40,000	10,000	74,000	45,000	26,000	18,000	25,000	425,000
A W B A - Recharge Sites :													
PHOENIX AMA :													
Direct >													
GRUSP	200,000	80,000											80,000
AGUA FRIA (1)	100,000								3,000	3,000	3,000	3,000	12,000
Indirect >													
CHCID	3,000	500							100	100	50	0	500
MWD (1)	18,000	20,000	588	2,471	2,471	2,588	2,588	2,470	1,412	1,412	1,412	0	20,000
NEW MAGMA	52,000	47,200	2,000	3,200	2,500	3,000	3,500	9,700	9,600	3,500	2,500	2,000	47,200
QUEEN CREEK	28,000	20,015	0	0	0	0	4,252	7,263	3,000	2,000	1,500	2,000	20,015
RWCD	10,000	24,000	0	0	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	24,000
TONOPAH ID	15,000	4,000	0	0	0	0	1,000	2,000	1,000	0	0	0	4,000
PINAL AMA :													
Indirect >													
CAIDD	110,000	35,000	0	0	0	0	0	21,241	9,384	1,145	504	2,726	35,000
HOHOKAM	55,000	50,440	1,500	2,400	8,500	6,000	8,900	1,600	2,000	700	250	1,400	50,440
MSIDD	120,000	52,780	2,070	3,420	9,630	8,280	7,660	6,110	1,760	730	1,240	1,910	52,780
TUCSON AMA													
Direct >													
AVRA VALLEY (1)	11,000	7,500	0	200	400	750	850	850	0	850	900	900	7,500
CAVSARP	10,000	5,040	460	460	460	460	460	0	460	460	460	440	5,040
PIMA MINE RD (1) (2)	10,000	5,000	0	0	100	600	600	0	625	625	625	600	5,000
Lower S. C. (1)	30,000	5,000	0	0	0	0	0	0	0	1,500	1,500	2,000	5,000
TOTAL (Direct + Indirect) :	771,000	368,475	14,030	17,068	32,761	29,111	34,308	34,488	29,500	66,919	42,301	25,472	368,475
Remaining CAP Capacity :	27,970	6,932	8,239	(111)	16,692	5,512	(19,500)	7,081	2,699	528	(1,341)	1,824	56,525

(1) Not yet permitted

(2) Capacity divided between CAP and Tucson Water; the Authority will lease CAP's 5,000 af.

The values in Table 2 reflect the delivery amounts at the CAP turnout and do not account for losses incurred between the turnout and the actual point of use. Those losses must be calculated and deducted from the deliveries to determine the actual credits earned by the Authority.

No recovery is anticipated in 1998. The Authority intends to develop recovery concepts during 1998 to ensure that the area from which the funds are collected will realize the benefit of the credits developed.

PRICING

For 1997 and 1998, the CAP Board adopted a rate for the delivery of the Authority's water of the pumping energy plus a \$5 contribution to the fixed operation and maintenance cost of the CAP. The Authority's policy of recovering \$21 from its in-lieu partners will continue for 1998.

Table 3 reflects the water delivery rate the CAP will charge the Authority, the rate the GSF operators will pay for use of the Authority's water, and the various rates the Authority will be charged to utilize the different USFs.

Table 3

1998 Water Rates	
CAP's delivery rate to AWBA	\$41 per acre foot
GSF operator portion of delivery rate	\$21 per acre foot ¹
Underground Storage Facility rate paid by AWBA	
GRUSP (SRP)	\$14 per acre foot
Agua Fria (CAP)	\$10 per acre foot (estimate)
Avra Valley (CAP)	\$15 per acre foot (estimate)
Pima Mine Road (CAP)	\$10 per acre foot (estimate)
Central Avra Valley (Tucson Water)	\$14 per acre foot (estimate)
Lower Santa Cruz (CAP/Pima County)	\$20 per acre foot (estimate)

¹ This rate is paid directly to CAP by the GFS operators and is not available as revenue to the Authority. It does reduce the Authority's rate for delivery of in-lieu water to \$20/af.

The CAP has established a subcommittee to review the existing delivery rate for the Authority's water. Two members of the Authority sit on this subcommittee. The subcommittee hopes to make a recommendation on a long-term delivery rate for inclusion in CAP's 1999 pricing decisions.

The estimated total cost of the Authority's 1998 Plan of Operation is \$11,300,000, which includes the direct facility use fees and the CAP delivery rate minus cost recovery by the CAP from the GSF operator.

ACCOUNTING

The Authority's enabling legislation requires the development of an accounting system that allows the tracking of all long-term storage credits accrued by the Authority and the funding sources from which they were developed. The Arizona Department of Water Resources has established accounts that allow for the tracking of both credits and funds.

Table 4 provides estimates of the funds available including funds carried over from previous years, the funds to be expended, and the credits that will accrue to those accounts based on the 1998 Plan.

Table 4

1998 Plan of Operation				
	Funding		Credits²	
	Available¹	Expended	Amount	Location
<u>Withdrawal Fee</u>				
Phoenix AMA	\$2,000,000	\$911,000	23,000 af	
Tucson AMA	\$725,000	\$0	0	
Pinal AMA	\$1,000,000	\$1,000,000	45,000 af	
<u>Four Cent Tax</u>				
Maricopa County	\$6,151,000	\$6,125,000	158,000 af	Phoenix AMA
Pima County	\$2,020,000	\$1,260,000	20,000 af	Tucson AMA
Pinal County	\$240,000	\$240,000	11,000 af	Pinal AMA
<u>Other</u>				
General Fund	\$1,760,000	\$1,759,000	75,000 af	
<i>Phoenix AMA</i>		\$235,000	6,000 af	<i>Phoenix AMA</i>
<i>Tucson AMA</i>		\$0	0	
<i>Pinal AMA</i>		\$1,524,000	79,000 af	<i>Pinal AMA</i>
California	(not applicable)			
Nevada	(not applicable)			
Total	\$13,896,000	\$11,295,000	296,000 af	

¹ Does not include in-lieu partners' payment; partners' payment made directly to CAP

² Estimate based on annual deliveries (annual delivery - 5% losses - 5% cut to the aquifer)

Table 5 provides an estimate of the funds expended and the credits that will accrue to various accounts based on the Authority's recharge activities since its inception. Because the Authority has only been in operation for one year the Cumulative Totals only represent 1997.

Table 5

Cumulative Totals			
(1997)			
	Funds	Credits¹	
	Expended	Amount	Location
<u>Withdrawal Fee</u>			
Phoenix AMA	Non available in 1997		
Tucson AMA	Non available in 1997		
Pinal AMA	Non available in 1997		
<u>Four Cent Tax</u>			
Maricopa County	\$3,744,000	133,000 af	Phoenix AMA
Pima County	\$175,000	3,000 af	Tucson AMA
Pinal County	\$225,000	14,000 af	Pinal AMA
<u>Other</u>			
General Fund	\$2,490,000	150,000 af	
<i>Phoenix AMA</i>	\$270,000	16,000 af	<i>Phoenix AMA</i>
<i>Tucson AMA</i>			
<i>Pinal AMA</i>	\$2,220,000	134,000 af	<i>Pinal AMA</i>
California	Not applicable		
Nevada	Not applicable		
Total	\$6,634,000	300,000 af	

¹ Estimate based on annual deliveries (annual delivery - 5% losses - 5% cut to the aquifer)

Public Review and Comment

Authority staff met with the Groundwater User Advisory Councils (GUACs) for the Phoenix, Tucson, and Pinal AMAs as required by the Authority's enabling legislation. The GUACs were generally supportive of the Authority's efforts in 1997 and of the proposed 1998 Plan. The Tucson GUAC was concerned about the small quantity of water being recharged in their AMA. They would like to see additional recharge activity in their AMA. They recognize the facility constraints, but felt a short-term answer could be the use of GSFs. They suggested the Authority revisit its decision to recover the \$21 from the GSF operators, especially in the Tucson AMA, where the \$21 limits participation.

The Authority received three letters commenting on the Plan from the Tucson GUAC, the Metro Water District and the Salt River Project. All three were supportive of the Authority's efforts. The GUAC's and Metro Water's letters supported the position expressed at the Tucson meeting. Salt River Project's letter suggested the Authority continue to pursue groundwater savings opportunities with the Project because of their overall benefit to the AMA.