

ARIZONA WATER RESOURCE

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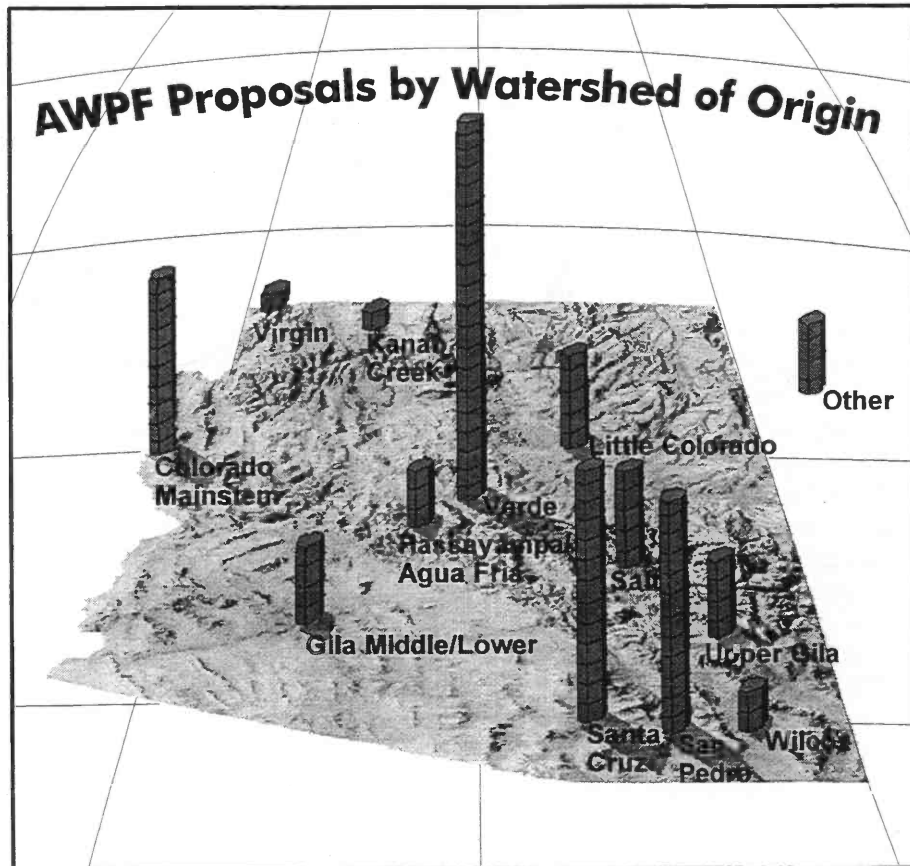
BuRec Offers Title Transfer of Projects

Certain U.S. Bureau of Reclamation properties may be up for sale. The agency recently issued a document, "Framework for the Transfer of Title," outlining the process of transferring title of certain of its projects to interested beneficiaries and non-federal governmental entities.

According to the document, BuRec's recent action is consistent with a policy the agency has had for decades; i.e., "to transfer operation and maintenance of projects to local entities where and when appropriate." Interest presently is growing for such transfers, reflecting current political thinking to limit the role of the federal government.

BuRec, however, is not proposing a wholesale sell-off of major federal properties. Instead the strategy, as described by a BuRec official, is to "pick the low-hanging fruit first." BuRec's framework document presents criteria determining which projects qualify as "low-hanging fruit"

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Arizona Water Protection Fund proposals were submitted for a broad range of basins in Arizona. Officials say this demonstrates the project serves a state-wide need. (Map by Ken Seasholes, WRRC; graph adapted from table provided by John Keane, SRP.)

AWPF Proposals Reviewed, Evaluated

In its first year of operation, the Arizona Water Protection Fund Program attracted 82 applications, with funding requests totaling \$27,610,523. The Arizona Legislature appropriated \$10 million for the program.

The AWPf program was established for "protecting and restoring this state's rivers and streams and associated riparian habitats, including fish and wildlife resources that are dependent on these important habitats."

About 10 of the 82 applications were rejected for violating provisions within the authorizing legislation. Some proposals requested administrative costs in excess of 5 percent of the total cost of the project, although the act states that such costs are not to exceed 5 percent. This condition was inserted to favor hands-on field projects over, for example, university research, with its high overhead costs.

Applications came from a fairly wide geographical area, indicating the

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program was well publicized (see map, page 1). The AWPf Commission conducted meetings and workshops throughout Arizona to attract interest in the program.

The Verde, Santa Cruz, and San Pedro watersheds respectively represent the main areas of origin and concern for submitted proposals. All three watersheds are experiencing rapid population growth that may affect river conditions. The San Pedro watershed especially has been the focus of controversy about what effects the growth of Sierra Vista and Fort Huachuca are having on the flow of the San Pedro River.

Among proposal topics, riparian habitat restoration or enhancement is the most frequent topic of concern, with water supply purchasing the third. Water supply purchasing refers to purchasing water for riparian use.

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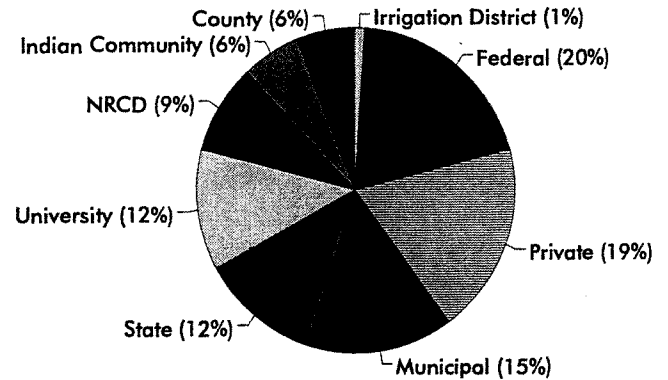
* Source: John Keane, SRP

As the AWPf program developed, the purchase of Central Arizona Project water for riparian use was once considered a priority. It became apparent, however, that this was an unrealistic strategy. Areas located away from the canal did not have access to CAP water. As a result, most of the proposals requesting funds to purchase water supplies refer to effluent.

“Water supply: site specific” refers to projects conducted at a definite location for a particular purpose, as opposed to a research project seeking to investigate general concepts. The former might be a project determining whether pumping from a certain aquifer diminishes stream flow along a specific river segment. The latter could be a study investigating various geological conditions and their relationship to stream flow.

Fund legislation, however, lumps together all projects that are primarily for “research and data collection, compilation, and analysis.” These projects cannot receive more than 5 percent of the money available; many proposals fall within this broad, but narrowly funded area.

AWPF Categories of Applicants*



*Source: John Keane, SRP

A large number of federal agencies applied for funding partly because their budgets are being reduced. The large number of federal applicants also reflects the fact that a great many federal agencies are involved in riparian issues.

At the same time, however, the 20 percent of federal applicants is overstated because a single federal agency submitted a study of a tributary of the Verde River as six separate projects, each studying the same problem from a different perspective, rather than as a single project.

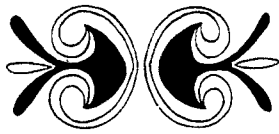
Project officials are pleased with the large percentage of proposals submitted by private individuals. This category includes individual ranchers or land owners wanting to resolve such problems as land erosion causing downstream silting.

These individuals, however, may be at a disadvantage compared to agencies and organizations with the staff and resources to complete comprehensive proposals. Natural Resource Conservation District applicants represent local, community-based organizations, and also lack the staff and resources to support extensive application development.

Proposal evaluation involves a public comment period which began shortly after the August 1 application deadline and will end September 29. Also, applicants will make an 8-minute oral presentation, scheduled September 25 and 26, before the AWPf Commission.

Meanwhile, the Arizona Department of Water Quality, assisted by Arizona Department of Environmental Quality and Arizona Game and Fish, is reviewing applications to ensure each meets legal, budgetary, technical, and administrative criteria. The results of this review then will be used to assign a score to each proposal according to the program criteria.

The AWPf Commission thus will have three sources of information for making its final award recommendations: public comments, ADWR reviews with assigned scores, and oral presentations. The commission will meet in late November to begin deliberations, with final recommendations expected by December 1.



Water Vapors

So many water problems seem insurmountable, so it is truly heartening to encounter a water crisis readily resolved through quick and creative action. Gracing Phoenix's new Central Library is an atrium lobby, called by its designer, Phoenix architect Will Bruder, the "Crystal Canyon." The space is intended as a metaphorical oasis and includes a pool that represents the "refreshment of life."

Trouble at Crystal Canyon

There were forebodings of trouble when an architect and a waitress fell into the pool at the opening night gala in May. Since then at least six other library visitors have taken the plunge. One victim mistook the pool for a black floor leading to the elevator.

A temporary barrier of portable poles and ropes proved ineffective. Assuming the barrier was bolted and secure, some people leaned on it, causing the barriers and themselves to tumble in.

Fortunately, the problem of the inadvertent use of the atrium pool proved readily resolvable. The architect is designing a 150-foot stretch of steel poles and chains which he describes as "a wonderful sway of braided steel necklaces." He adds, "The solution is very poetic."

Mysterious Power of Water

The pool problem was viewed as a design flaw and was treated accordingly. But could the mysterious attraction of water have contributed to the "unintended" immersions? Writer M. F.K. Fisher describes water's powerful, even suicidal, attraction: "There is something about a bridge over clear water, no matter how far down (perhaps the farther the better) that does pull people down into it, toward it."

She describes a personal experience while walking on the Golden Gate Bridge: "About a quarter of a mile

onto the bridge, I realized that the whizzing cars on one side and the peaceful bay on the other were splitting me in two ... and I was almost overcome with the terrible need to jump off and be more peaceful."

Could people be throwing themselves into the atrium pool at the Phoenix Central Library to escape the stress of living in the Phoenician megapolis? Are similar incidents occurring at other Phoenix-area pools?

Dancing of the Waters

Whatever the cause of the problem, the discovery of a "very poetic" solution is heartening since few water problems are resolved artistically. In fact, water's aesthetic appeal rarely is recognized when technocrats and committees discuss water affairs. It is not that Arizona's water community is boorish and unresponsive to the aesthetic appeal of water. Rather, tackling water quantity and quality issues is so all-consuming that water's aesthetic attraction seems beside the point.

In response to this situation, the University of Arizona's Office of Cultural Affairs has scheduled three dance performances exploring various aspects of our natural environment, including water. OCA is planning the performances as opportunities to creatively integrate information about land, water and the environment with the creative movements of dance.

One of the events, performed by Contraband, a team of dancers, musicians, and artists, is *Mira, Cycle III*.

According to the program, the performance, scheduled for April 27 in Tucson, "focuses on water as a universal metaphor, representing something that is, at the same time, completely ordinary and completely sublime."

OCA is arranging special events to bring together government officials, researchers, and others involved in water with the dancers of *Mira, Cycle III*, so that people of science and public policy can join with performers to celebrate the aesthetic or artistic meaning of water. OCA invites suggestions on how to facilitate these encounters.

Planned events could include discussions, seminars, workshops or other special events. They could involve events as simple as setting up booths with water information in the theater lobby, or more involved activities. Please contact Joe Gelt, Water Resources Research Center, with any suggestion you may have.

Correction

The April-May *AWR* review of House Bill 2193 included a discussion of the section of the bill pertaining to water rights on State Trust lands for stock watering, stockpond purposes, or for domestic use on a farm or ranch. Such water rights are to be issued to the state except when water is diverted from private or federal lands, or when the water right was perfected on federal land by the lessee before land ownership was transferred to the state. The article erroneously indicated a ranch and farm exception.



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Arizona Water Resource Staff

Editor: Joe Gelt
Reporters: Holly Ameden
Barbara Tellman
Mary Wallace
Publisher: Gary Woodard

WRRC Director: Hanna J. Cortner

Arizona Water Resource

Water Resources Research Center
College of Agriculture
The University of Arizona
350 North Campbell Avenue
Tucson, Arizona 85719
520-792-9591; FAX 520-792-8518
Email: wrrc@ccit.arizona.edu



News Briefs

Dishrags Found Hazardous to Health

Nothing is spared in the researcher's relentless pursuit of the sources of contamination and disease. In his quest for such threatening sources, University of Arizona water quality expert Chuck Gerba discovered that the lowly sponge or dishrag is a breeding ground for potentially dangerous bacteria.

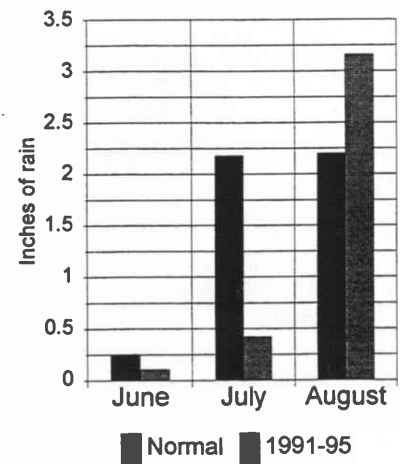
Gerba studied a hundred sponges and dishrags collected in the New York City area. He found 39 percent of the rags and sponges contained either *Staphylococcus* or *Salmonella* — two leading causes of food-borne diseases in the United States. He also discovered that lurking within 68 percent of the rags and sponges were bacteria with the potential to cause illness in humans, including fecal coliform bacteria, broad indicators of filth and bacterial contamination.

In the absence of federal and state rules regulating the use of sponges and dishrags, Gerba offers suggestions to minimize risks of sickness. He suggests using germ-resistant sponges; running sponges or dishrags through the dishwasher or washing machine daily; and regularly spraying counter tops, cutting boards and other surfaces with a disinfectant approved for kitchen use, then wiping surfaces with paper towels.

Monsoon Puts in Yet Another Late Appearance

This summer's monsoon got off to a late start in Phoenix and Tucson, but then made up for it with heavier than normal precipitation in August. Phoenix recorded only trace precipitation in June and July, while Tucson International Airport recorded a scant 0.04 inches, making it the driest June and July on record for both metropolitan areas. Normally, Phoenix gets over an inch of rain in June and July, while Tucsonans expect two and a half inches, according to Pat Holbrook of the

Tucson's Tardy Monsoon
1991-95 vs. Normal



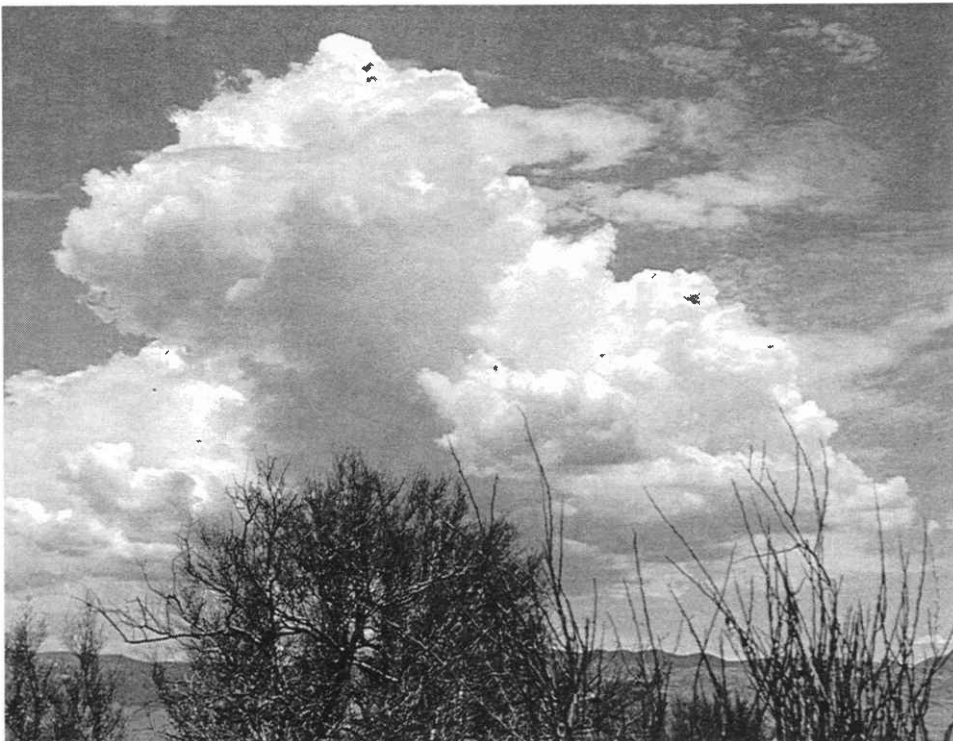
National Weather service.

Torrential August storms dumped 3.5 inches on Phoenix and 3.71 inches on Tucson, which normally receive 1.0 and 2.2 inches, respectively. The 3.5 inches in Phoenix exceeds that for any August in the last 30 years.

This marks the fifth consecutive year that Tucson has had below-normal precipitation in June and July followed by above-normal rainfall in August (see bar chart, above). A similar but weaker trend is observed in Phoenix, where monsoon storms are more fickle.

Five years of data do not constitute proof of climate change, but speculation on the causes of the tardy monsoon already has begun. Holbrook believes any number of factors could have contributed to this trend including, El Niño, global warming, or the eruption of Mt. Pinatubo in the Philippines.

The soggy August assures Phoenix of above-average precipitation for the monsoon. In Tucson, however, total monsoon precipitation is likely to fall far below normal despite the August rains. As of mid-September, approximately four inches of rain have fallen since the beginning of the 1995 monsoon season. More than two additional inches of rainfall are needed by the end of September to reach the average season total of 6.23 inches.



Monsoon clouds have been late arrivals to southeastern Arizona during the 1990s.

Gila River Indian Area HSR to Begin

A recent court ruling paves the way for litigating the water rights of the Gila River Indian Community, which claims some of the oldest water rights in the Gila River adjudication. Judge Susan Bolton ruled that the Arizona Department of Water Resources can begin work on the "hydrographic survey report" for the Gila River Indian Reservation. An HSR is the first step toward active litigation.

In effect, the ruling means litigation of the Gila River Indian Community's water rights will occur years earlier than previously scheduled. However, even a preliminary HSR for the Gila River Indian Reservation is not expected before summer 1996. Judges in the Gila River and Little Colorado River adjudications now are taking steps to expedite litigation of tribal and federal claims, to reduce the complexity of the adjudication.

Judge Bolton also amended an earlier Judge Goodfarb ruling that specified what information ADWR is to include in its "practicably irrigable acreage" analysis of Indian lands. Judge Bolton indicated "it is not the court's intention that ADWR address all the factors necessary for a final determination of PIA."

"Instead ADWR analysis should concentrate on the physical factors involved in PIA, such as water supply and land arability, showing the general likelihood and locations for additional successful agricultural development on the reservation."

Environmental Role of State vs. Feds Debated

A prominent national debate was taken up at a state conference as two participants discussed whether the state or federal government should regulate the environment. Dave Baron, assistant director of the Arizona Center for Law in the Public Interest, and House Speaker Mark Killian, a Mesa Republican, argued different positions at the

Arizona Hydrological Society's 8th Annual Symposium held in Tucson.

Baron claimed that states, including Arizona, failed to regulate effectively environmental contamination, leading to the widespread pollution of the nation's waterways, air and land during the 1970's. As a result, Congress was forced to act with measures such as the Clean Water Act of 1972 which pushed industry and local governments to clean up the pollution.

"We have a generation of federal regulation because the public wants the environment protected and (the public) is not getting that level of protection from the states," said Baron.

Baron further argued that states are not able to address successfully such current problems as groundwater quality protection, land use and zoning, and nonpoint source pollution. Baron said federal environmental laws more effectively deal with such issues because: air and water pollution is not confined by state borders; different

levels of environmental regulation among states would create "pollution havens," attracting industry to states with weaker laws; and states do not have the resources and expertise available to the federal government.

Killian disagreed, saying that the Arizona Legislature is committed to both a clean environment and protection of private property rights.

Killian stated that "We should tuck the Constitution in there to preserve people's rights when environmental regulations are developed." He provided examples of abuses of Section 404 of the Clean Water Act and the Endangered Species Act to illustrate how private property owners get "caught between the agencies and the law and sometimes lose their property."

Killian described some Arizona environmental success stories: legislation on clean burning fuels, creation of the Department of Environmental Quality, and tax credit for converting vehicles to clean burning fuels.



"Should we concrete the banks of the Santa Cruz River?" is the topic of a slide show to be presented by Ed McCullough at an October 12 Sierra Club meeting, to be held 7:45 p.m. in Room 201, PAS Building, University of Arizona, Tucson. Above is the rampaging Santa Cruz River cutting off a meander channel (note trees along the original channel) during 1983 flooding. (Photo: P. Kresan)



Legislation & Law

Title Transfer continued from page 1

and describes the terms of proposed transfers.

For example, only "uncomplicated projects" will be considered for transfer. BuRec defines such projects as "projects or facilities where there are no competing interests, the facilities are not hydrologically integrated with other projects, the financial arrangements are relatively simple and easily defined and the legal and institutional concerns associated with a transfer can be readily addressed."

These obviously are not terms for the marketing of Hoover Dam. The BuRec rules are more applicable to transferring far less complex projects; e.g, a small irrigation project in Wyoming that has operated for 70 or 80 years, and is still committed to its original purpose. Such a project would be limited in scope, not engaged in flood control, nor providing Indian or municipal water supplies, nor involved in any problems of endangered species within a watershed.

The framework lists six major criteria to be met prior to project transfer: the federal treasury must be protected; compliance with applicable state and federal laws must be ensured; interstate compacts and agreements must be protected; Native American trust responsibilities must be met; treaty obligations and international agreements must be fulfilled; and the public aspects of the project must be protected.

BuRec and an interested party would determine the property's base value. A project's negotiated price, however, may vary from the base value due to "factual circumstances and equitable treatment consideration." In addition, when establishing a price, BuRec may consider future uses on the transferred lands and waters.

Further, the interested entity or buyer must pay appropriate costs for preparing the transfer. Such costs

would vary depending upon the project, but could include paying to develop an environmental impact statement or for research to define the scope, extent, and federal interest in the project.

After terms have been agreed upon, congressional approval is needed to finalize the transaction. Such approval is required because neither BuRec officials nor the Secretary of the Interior has the authority to dispose of federal property.

Varied opinions exist within BuRec regarding the value of the framework. "Some people in policy or in the political side believe the framework has a lot of merit," says Tom Burbey, BuRec Chief of Water Resources Management Division in Phoenix. He believes, however, that basic changes are needed before the policy will attract widespread interest.

BuRec officials surveyed Central Arizona water users to determine interest in the "framework" or other possible transfer terms. In general, respondents expressed interest in someday acquiring title to BuRec properties, but not now, nor under the present terms, Burbey says. "People are interested in talking about it, but I don't think anyone is interested in jumping on the bandwagon and pursuing it."

Observers speculate about which Arizona entities might be interested in acquiring BuRec facilities. The Salt River Project is often mentioned as a possible interested party. But its interest is limited.

"We are not seeking nor do we want transfer of BuRec facilities," says SRP spokesperson John Egan. "As the various BuRec proposals are unveiled, we keep appraised of them to see how they would affect our operations and shareholders."

Central Arizona Water Conservation District has expressed interest in gaining title to the CAP headquarters complex, a BuRec facility. Discussions even have occurred about the value of the property. With CAWCD presently involved in a dispute with the federal government, however, the district would be reluctant to approach Congress for approval to acquire title to

CAP headquarters.

Several other efforts currently are underway for transferring BuRec facilities to nongovernment entities. California's Central Valley Project is developing a proposal to allow its members to purchase interest and title to federal facilities. Also, Senator Craig of Idaho has proposed HB 620, that arranges the transfer of federal properties to nonfederal interests.

BuRec took the initiative to develop its own procedure for transferring Bureau property, rather than wait for Congress or individual water users or projects to act. This strategy represents BuRec's contribution to reducing the national debt by cutting back its work force and budget. Further, by selling off its facilities, BuRec would be raising money to further offset the federal deficit.

CAP is Growth Area for Tucson Lawyers

As the state and the federal government exchange lawsuits over the repayment of the Central Arizona Project, legal disputes have erupted among various Tucson interests, with CAP water use and quality the underlining issue.

Metro Water District vs. Tucson

A legal fight is brewing between Tucson Water and the Metro Water District over the purchase of CAP water. The Metro Water District was founded in 1992 when the former Metropolitan Water Co. utility was purchased from the City of Tucson for \$14.6 million. The purchase agreement specified that Metro is to pay the city \$2.4 million by June 1996 for 6,945 acre-feet of CAP water, with payments to begin by July 1, 1995, whether the district used the water or not. The deadline was later changed to August 1 to accommodate Metro's effort to renegotiate the deal.

Metro then filed suit August 16 against the city of Tucson claiming that its agreement to purchase CAP water is no longer valid partly because "it has already been determined through an aborted attempt to deliver

treated CAP water to Tucson Water customers that the water is harmful at least to delivery systems, if not to customers themselves." The suit argues that CAP water fails to meet the quality standards of Metro or Oro Valley, a town served by the district.

Further, Metro questions the city's ability to deliver the water over time, and faults the city for failing to complete a system for conveying water to the northwest area as specified in the purchase agreement.

As a result, Metro is willing to take only 57 percent of the water since the incomplete delivery system reaches only 57 percent of the district's customers. A lower price also is requested.

Tucson vs. Metro Water District

The city responded by filing a counterclaim against the district stating its officials falsely represented that Metro would take CAP water "come hell or high water" when negotiating for the purchase of the system. As a result, the city believes its consent to sell "was obtained by fraud" and demands the return of the water system it had sold three years ago.

Further, the city's claim seeks a court order to bar Metro from implementing changes to its water system — e.g., constructing new reservoirs — that would complicate the system's integration back into Tucson Water's operations.

The suit states that an acceptable alternative to the above actions would be an enforced agreement that Metro purchase part of Tucson's CAP allocation, as well as help pay for Tucson's treatment plant and delivery system.

Tucson vs. CAP Plant Designers

Meanwhile Tucson is engaged in a CAP legal fight on another front. Along with suing Metro Water for refusing to take CAP water because of its alleged poor quality, the city also is suing Carollo, Black & Veatch, a joint venture of engineering firms that designed and supervised the construction of Tucson Water's CAP treatment plant.

The lawsuit filed November 8,

1994, alleges that "the plant, as designed and inspected by CBV, fails to comply with the intent of CBV's agreement with (the City) in almost every respect." The City further alleges that the contractors' negligence resulted in "substantial defects in the design and construction of the Plant."

According to city officials, however, the treatment plant's design flaws have not adversely affected the quality of water produced by the plant which, they say, met all federal and state standards. The treatment plant was shut down last October when flow through the CAP canal was temporarily halted for repair and replacement of siphons.

The city filed the lawsuit to stave off the statute of limitations, while negotiations continue with CBV to resolve the dispute.



Tucsonans vs. Tucsonans

In another action, court intervention was requested to keep an initiative off the November ballot to allow Tucson voters to decide whether to restrict the city's use of CAP water. In sum, the initiative aims to force the city to recharge its CAP allocation. At least 17,400 of the nearly 30,000 collected signatures were deemed valid, a number well over the required 10,938 signatures needed to put the initiative on the ballot.

The action was not to the liking of a coalition of 28 Tucson citizens — 17,372 fewer citizens than signed the initiative petition — who filed a lawsuit July 31 in an effort to overturn the initiative on technical grounds. They claim initiatives are to establish new laws, not set administrative policies. They view CAP water use as an administrative matter for city water officials to decide, not the voters.

Santa Cruz County Judge Roberto Montiel disagreed. In a September 14 ruling he said voters were not trying to dictate administrative decisions, but instead were attempting to force policymakers to set legislative policies.

The judge stated, "The advisability of the standard attempted to be imposed by the initiative is clearly questionable. However, this court does

not have the authority to rule on such issues. Those are issues that should be debated by the electorate." The judge further stated that, "Courts must be careful not to place undue restrictions upon the citizens' power to enact legislation."

Opponents of the initiative pledged to appeal the ruling to the State Supreme Court.

Tucsonans vs. City of Tucson

Other Tucson citizens are pursuing a more aggressive strategy than the signing of a CAP initiative petition. Four residents have filed a \$15-million claim against Tucson saying CAP water not only caused nearly \$18,000 in damages to their appliances, pipes and fixtures — Tucson Water reimbursed them only \$700 — the water also caused "sustained illnesses, skin rashes, lesions, blisters, scars."

The claim states that adequate study and testing of the treatment and distribution of CAP water did not occur, nor did the city heed warnings and data allegedly indicating the water "would be hazardous to the health and property of those who consumed or received it." Further, the claim states the city violated its duty to provide safe drinkable water to the public.

Attorney Barry A. Mac Ban states that if the city refuses to settle the claim, a class actions suit likely will result, involving thousands of people claiming to have suffered injury to themselves or their household properties or businesses. He says he has received numerous phone calls from people with CAP "horror stories" to relate.

As the deadline nears, the city has not yet responded to the suit. According to City Attorney Tom Berning, the city code does not contain any provisions to settle such a claim. Also, he says state law requires a claim be filed within 180 days after the harm occurred, and this claim did not meet the prescribed deadline. Most importantly, according to Berning, he was informed that CAP water met federal and state water quality standards and so the city has no legal liability for damages that occurred.



Publications

The following three publications were recently published by the University of Arizona's Water Resources Research Center:

Water Recreation Makes Big Splash in Arizona

Joe Gelt, Vol. 8, No. 3 of *Arroyo*, a quarterly publication of the Water Resources Research Center. Water is source of varied pleasures, including canoeing, swimming, and fishing. In water management parlance these are recreational uses of water. When water is used for recreation, a specific set of issues and concerns are raised, just as when water is applied to agricultural, urban or industrial purposes. This publication discusses water issues arising from the recreational uses of water. Individual copies — also subscriptions of *Arroyo* — are available without charge from the Water Resources Research Center, University of Arizona, 350 N. Campbell Ave., Tucson, AZ 85721; 520-792-9591; fax 520-792-8518.

Partnership Handbook: A Resource and Guidebook for Local Groups Addressing Natural Resource, Land Use, or Environmental Issues

Ann Moote, Water Resources Research Center. This new World Wide Web site serves local partnership groups. Guidelines are provided for starting partnership groups; processes are identified to overcome common stumbling blocks; and an annotated list is provided of other sources of information, including printed guides, organizations, and agency programs. Links to related Internet sources are provided. <http://ag.arizona.edu/partners/> (See WRRC address above.)

Where to Find Water Expertise at State Universities in Arizona -1995 Update

This revised edition of a volume first published in 1993 is available free from the Water Resources Research Center. The directory contains basic information about the faculty and staff working in water-related areas at Arizona's three state universities including each person's area of water expertise, addresses and phone numbers. Information is arranged to readily identify experts in various water areas, by listing people according to general and specific research areas, and by geographic and language expertise. A searchable version of the directory is available from AZWATER, the WRRC's WWW site, URL <http://ag.arizona.edu/AZWATER/>. For paper copies contact the WRRC. (See WRRC address above.)

Management of Conserved Water: Market Development, Efficiency Gains, and Distributive Consequences

Bonnie Colby, Dennis Cory and Harry Ayer. This document is a 105 Water Resources Research Completion Report. Limited numbers of the report are available from the U.S. Geological Survey, Office of External Research, 424 National Center, Reston, Virginia 22092.

1994 Arizona Agricultural Statistics

A cooperative project of the University of Arizona's College of Agriculture and the Arizona Agricultural Statistics Service, this publication provides information and statistics that define agricultural operations in Arizona during 1994. Free copies are available from Arizona Agricultural Statistics Service, 3003 N. Central Ave., Suite 950, Phoenix, AZ 85012-2994; 602-280-8850; fax 602-280-8897.

Salinisation of Land and Water Resources: Human Causes, Extent, Management and Case Studies

F. Ghassemi, A.J. Jakeman and H.A. Nix. Human-induced salinization is a major threat to the world's land and water resources. The first part of this book analyzes the problem in the context of the world's population, climate, and land and water resources. The second part describes irrigated land, dryland and water-resources salinity problems in eleven countries. The book is published by CAB International, an inter-governmental organization. CABI books' exclusive US distributor is the U. of Arizona Press, 1230 N. Park Ave., Tucson, AZ 85719; 520-621-1441; fax 520-621-8899. \$115.

The Water Future of Albuquerque and Middle Rio Grande Basin: Proceedings of the 39th Annual New Mexico Water Conference

This contains the papers and presentations from the conference held November 3 and 4, 1994 in Albuquerque, New Mexico. Topics covered include the history of water development, water resources assessment and management, flooding, conservation, hydrologic, water quality, regulatory, water supply and water demand issues. Copies cost \$21 each; prepayment is required. Contact the New Mexico Water Resources Research Institute, Box 30001 Dept. 3167, Las Cruces, New Mexico, 88003-8001; phone 505-646-1813.

Arizona Department of Water Resources Tucson AMA Northwest Area Hydrologic Study

This report and database of existing hydrogeologic information was developed to assist those interested in preparing applications for an assured water supply, applications for recharge projects, or those interested in future hydrologic model development. The report summarizes the development of the database, describes the data, and contains a number of geologic cross-sections and hydrographs for wells within the study area. The electronic database includes an index of the wells, water level data, pumpage data, and aquifer test data. For further information contact Patricia Olsen, ADWR, 400 W. Congress, Suite 518, Tucson, AZ 85701; 520-628-6758.

Modifications to the Second Management Plan 1990-2000

The Second Management Plan for the Tucson Active Management Area has been slightly modified as of July 1995. This booklet contains modifications to the SMP that were made pursuant to orders of the director effective April 20 and May 2, 1995. ADWR, 500 N. 3rd Street, Phoenix, AZ 85004; 602-417-2410; fax 602-417-2401.



Transitions

Ed Fox, former director of the Arizona Department of Environmental Quality, has joined **Arizona Public Service Company** as the utility's vice president for environmental health and safety. Fox resigned from ADEQ in July without stating any future plans (see June-July *AWR*, p. 9).

A national search for Fox's replacement continues, with a new director expected to be named by October. In the interim, deputy director **Karen Heidel** is serving as acting director.

Marybeth Carlile has announced her retirement as Executive Director of the **Southern Arizona Water Resources Association**, effective December 31. Carlile has been SAWARA's executive director since its founding in 1982.

The retirement comes as SAWARA reaches a crossroad. Originally formed to assure the timely completion of the Central Arizona Project to Pima County, SAWARA was phasing out of existence in 1993 when problems with CAP water quality caused its board to reconsider. A search for Carlile's successor awaits a board decision on the organization's future. Currently, a committee is considering various options, including reconstituting SAWARA so that it can directly engage in lobbying activities.

Grant Ward has left the **Central Arizona Water Conservation District**, where he was assistant general manager, to become general manager of the **Maricopa-Stanfield Irrigation and Drainage District**. The opening at Maricopa-Stanfield was created when **Van Tenney** left for a similar position with a California district (see April-May *AWR*, p. 9).

Ward had been with the CAWCD since November 1991, when he arrived from a position with the Agri-Business Council of Arizona. CAWCD currently is interviewing candidates for the assistant manager position. Several prominent names in Arizona water circles reportedly have expressed interest.

Arizona Water Resource is financed in part by sponsoring agencies, including:

Arizona Department of Environmental Quality

Arizona Department of Water Resources

Arizona Hydrological Society

Arizona Municipal Water Users Association

Central Arizona Water Conservation District

Geraghty & Miller

Metro Water District

Salt River Project

Tucson Water

USGS Water Resources Division

Water Utilities Association of Arizona

Their contributions help make continued publication of this newsletter possible.

Larry MacDonnell has joined with **Bruce Driver** to form a consulting firm called **Sustainability Initiatives** in Boulder, Colorado. MacDonnell recently retired from an 11-year stint as director of the Natural Resources Law Center at the University of Colorado School of Law, a position now held by **Betsy Reike**. Driver's most recent activities include four years as director of the Energy Project at the Land and Water Fund of the Rockies. Previous to that, he helped formulate water policy for the Western Governors Association.

Bill Mee's position as head of the Water Conservation and Resources Division, Phoenix Water Services Department, has been eliminated. The move came following the transfer of staff responsible for rate-making and budgeting from Phoenix's Water Services Department to the City's finance office. Mee has joined the Phoenix Planning Office on special assignment.



Fourth and fifth grade students from Amphitheater School District's Reach Program offered the Tucson City Council a few recommendations for its proposed constructed wetlands project. Students' recommendations included building "a bridge and waterfall system so visitors can escape city noises and enjoy the quiet natural habitats," a "Ramada Learning Center with environmentally appropriate construction that provides exotic snacks, interactive learning, and free information printed on recycled paper," the design of a logo (shown above) and a tee shirt with the invitation to "Come See Marshians." The logo is to be the official design for the wetlands project.



Announcements

Sol Resnick Internship Announced

The University of Arizona's Water Resources Research Center and the Office of the Special Master, Arizona General Stream Adjudication, are offering a graduate research assistantship, spring semester, 1996, for a student to work with the Special Master. The internship is offered through the Sol Resnick Internship Program.

This paid internship is open to graduate and law students at the University of Arizona, Arizona State University and Northern Arizona University. Applicants should be knowledgeable about water resource management issues and have good research and writing abilities. Students with background in the hydrologic and/or environmental disciplines of science, public administration, political science, natural resource management and law or other related fields will be considered. Applicants should submit a letter or application, accompanied by a résumé, and the names and phone numbers of three references by October 13, 1995 to: Mary G. Wallace, Water Resources Research Center, 350 N. Campbell Ave., University of Arizona, Tucson, AZ 85721.

WRRC Invites Grant Applicants

The Arizona Water Resources Research Center is accepting letters of intent to submit proposals for research grants under the Water Resources Research Act, Section 104 research grant program (depending upon final congressional approval). This program provides money to the WRRC to fund small research projects on water-related issues of critical importance to the state and region.

Researchers from Arizona's three state universities in any of the social, biological, physical, engineering and management sciences are invited to apply. Letters of intent must be submitted by October 5, 1995. Contact Mary Wallace for additional information: Water Resources Research Center, 350 N. Campbell Ave., University of Arizona, Tucson, Arizona 85721; 520-792-9591.

WATER MAZE Workshop for Parents, Teachers

Good at solving riddles and decoding secret messages? Then you'll want to explore WATER MAZE. The MAZE utilizes sight, sound and touch to introduce students to water history, current water issues, water conservation, and more. The Arizona WET (Water Education for Teachers) staff at the Water Resources Research Center, University of Arizona, created the WATER MAZE for the Tucson Active

Management Area Office, Arizona Department of Water Resources. The WET staff is holding a workshop on October 7, from 1 to 3 p.m., at the WRRC, 350 North Campbell Ave., Tucson, to introduce this new, interactive teaching tool. The workshop is free but space is limited. To register, call Lin or Cecilia; 520-792-9591, fax 520-792-8518.

UA Faculty Position Available

The University of Arizona's School of Renewable Natural Resources, College of Agriculture, is soliciting applications for an Assistant Research Scientist with the Watershed Resources Program. The primary assignment will be with the USDA, Agricultural Research Service, Southwest Watershed Research Center, Tucson, Arizona. Qualifications for the non-tenure track position include a PhD in watershed hydrology or closely related discipline, with a strong background in soil erosion and groundwater flow modeling, hydraulics, and hydrology.

Application review will begin November 1 with applications accepted until the position is filled. Send resume and names of three references to Dr. Richard H. Hawkins, Watershed Search Committee, School of RNR, 325 Biological Sciences East, University of Arizona, Tucson, AZ 85721; 520-621-7273; email rhawkins@ag.arizona.edu.

New Mexico's Water Conference Scheduled

The theme of New Mexico Water Resources Research Institute's 40th Annual New Mexico Water Conference, scheduled October 26 and 27 in Las Cruces, New Mexico, is "Reaching the Limits: Stretching the Resources of the Lower Rio Grande." Early registration is \$90 (\$30 for students) and must be submitted by October 10; late registration is \$115 (\$40 for students). For more information contact the New Mexico Water Resources Research Institute, New Mexico State University, Box 30001 Dept. 3167, Las Cruces, NM, 88003-8001 or register via Internet, <http://wrri.nmsu.edu> and choose "Water Conference."

Power and Water Symposium

The Third Annual "Southwest Public Power and Water Symposium: Arizona, California, Nevada" will be held October 19 and 20 at the Tropicana Hotel, Las Vegas, Nevada. The Symposium will be presented in four major sessions: Power, Environment, Water, and Congressional. A panel of Congressional members from the three states will discuss Congress' role in the legal and political future of public power and water in the Southwest. Registration is \$175 and must be received by October 12. For more information contact Michele Slagle, NEOS Corporation, 3569 Mt. Diablo Blvd., Suite 200, Lafayette, CA 94549-3837; 510-284-3780; fax 510-284-3147.



Calendar of Events

RECURRING



Arizona Hydrological Society (Flagstaff). 2nd Tuesday of the month, 7:00 p.m. NAU, Southwest Forest and Science Complex, 2500 S. Pine Knoll Dr., Room 136, Flagstaff. Contact: Don Bills 520-556-7142.

Arizona Hydrological Society (Phoenix). October 10, social hour begins at 5:30 p.m. Presentation by Ken Schmidt on groundwater remediation at the Motorola, Inc. Mesa Center. U.S. Water Conservation Laboratory, 4331 East Broadway Rd., Phoenix. RSVP to Diane 602-966-2337.

Arizona Hydrological Society (Tucson). 2nd Tuesday of the month, social hour begins at 6:30 p.m. No general meeting in October. Contact: Laurie Wirt 520-670-6231.

Arizona Water & Pollution Control Association. Monthly luncheon meetings will resume in the fall. Contact: Brad Jurkovic 520-299-0992.

Arizona Water Protection Fund Commission. October 24, 10:00 a.m. in Yuma. Contact: Trish McCraw 602-417-2400, ext. 7423.

Arizona Water Resources Advisory Board. To be scheduled. Contact: Tina Maranda 602-417-2400.

Central Arizona Project. 1st Thursday of the month, 12:30 p.m. CAP Board Room, 23636 N. 7th St., Phoenix. Contact: Donna Micetic 602-870-2333.

City of Tucson Citizens Water Advisory Committee. 1st Tuesday of the month, 7:00 a.m. 310 W. Alameda, Tucson. Contact: Karen Alff 520-791-2666.

Maricopa Association of Governments / Water Quality Advisory Committee. Next meeting to be announced. Contact: Wendy Bower 602-254-6308.

Maricopa County Flood Control Advisory Board. 4th Wednesday of the month, 2:00 p.m. 2801 W. Durango, Phoenix. Contact: 602-506-1501.

Phoenix AMA, GUAC. October 5, 9:30 a.m. Conference Room A, 500 N. 3rd St., ADWR, Phoenix. Contact: Mark Frank 602-417-2465.

Pima Association of Governments / Water Quality Subcommittee. 3rd Thursday of the month, 9:30 a.m. 177 N. Church St., Suite 405, Tucson. Contact: Gail Kushner 520-792-1093.

Pima Co. Flood Control District Advisory Committee. 3rd Wed. of the month. 7:30 a.m. Room A, 201 N. Stone, Tucson. Contact: Carla Danforth 520-740-6350.

Pinal AMA, GUAC. October 19, 1:30 p.m. Pinal AMA Conference Room., 1000 E. Racine, Casa Grande. Contact: Dennis Kimberlin 520-836-4857.

Prescott AMA, GUAC. Tentatively scheduled for October 23, 10:00 a.m. 2200 E. Hillsdale Rd., Prescott. Contact: Phil Foster 520-778-7202.

Santa Cruz AMA, GUAC. October 18, 9:00 a.m. Santa Cruz AMA Conference Room., 857 W. Bell Rd., Suite 3, Nogales. Contact: Placido dos Santos 520-761-1814.

Tucson AMA, GUAC. Tentatively scheduled for October 20, 9:00 a.m. Tucson AMA Conference Room., 400 W. Congress, Suite 518, Tucson. Contact: Kathy Jacobs 520-628-6758.

Verde Watershed Association. October 12, 7:00 p.m. Contact: Tom Bonomo, VWA Newsletter Editor, c/o Verde R.D., P.O. Box 670, Camp Verde, 520-567-4121.

Yavapai County Flood Control District Board of Directors. 2nd Monday of the month in Prescott, 255 E. Gurley St.; 4th Monday in Cottonwood, 575 E. Mingus. Contact: YCFCD, 255 East Gurley, Prescott, 520-771-3196.

UPCOMING



October 19 & 20, **Third Annual Southwest Public Power and Water Symposium, Arizona - California - Nevada.** Las Vegas, Nevada, cost is \$175, register by October 12. For details, or to register, call Michele Slagle 510-284-3780.

October 20, **Understanding and Protecting Your Water Rights in Arizona.** A one-day seminar for water rights owners and claimants to be held at the Pointe Hilton Resort, Phoenix. Cost is \$260 for registration before October 13, \$285 after this date. For more information contact Jo Price at The Cambridge Institute, 1-800-232-9096.

November 14, **Celebrate Arizona Water Conference.** Sponsored by SRP, CAP, ADWR, Colorado River Indian Tribes, Wellton-Mohawk Irrigation District, Pima County Waste-water, City of Phoenix, and City of Tempe. For more information call 602-236-5978.

Submit calendar, announcement, or publication information to Holly Ameden at the WRRC; 520-792-9591; fax 520-792-8518.

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Phoenix AMA Seeks Augmentation, Conservation Proposals

The Phoenix Active Management Area, Arizona Department of Water Resources is accepting applications for the 1996 Augmentation and Conservation Assistance Program. Approximately \$2 million is available to fund project aimed at supplementing the water supply of the AMA or assisting users within the Phoenix AMA to reduce water consumption. Application deadline is November 15, with selection of grants to be completed by April 1996. Contact Alan Fehrman or Marjie Risk, Augmentation and Conservation Grants, ADWR, 500 North Third St., Phoenix, AZ 85004; 602-417-2465.

Forest Roundtable Scheduled

Planning for the 1996 Seventh American Forest Congress is underway and includes an Arizona Forest Congress Roundtable to be held in Sedona, Arizona, Friday, November 17. The purpose of the Roundtable is to bring together diverse interests to establish a vision, as well as work out guiding principles and recommended next steps for future forest management. For more information contact Mary Lee Dunning, Roundtable Event Chair; 520-204-1118; fax 520-204-2594; email richardd@sedona.net.

Irrigation Conservation Seminar Upcoming

The U.S. Committee on Irrigation and Drainage (USCID) and the U.S. Bureau of Reclamation are sponsoring a water management seminar, "Irrigation Water Conservation — Opportunities and Limitations," October 5-7 in Sacramento, California. The seminar will address the issue of irrigation water conservation in a multidisciplinary forum. Lectures will focus on conservation practices — concepts and misconceptions, the benefits and detriments of conservation, and institutional improvements for water conservation. For more information contact USCID, 1616 17th St., Suite 483, Denver, CO 80202; 303-628-5430; fax 303-628-5431; email ldsuscid@aol.com.

Phoenix AMA Offers Internships

Internships are available with the Phoenix Active Management Area. Candidate should have undergraduate and/or graduate work in planning, landscape architecture, agriculture, environmental science, hydrology, geology, natural resources, geography, public policy or related field. Computer experience is desired; GIS background would be an asset. Internships pay \$7 per hour. Submit resume and cover letter to Jim Holway, Arizona Department of Water Resources, 500 N. 3rd St., Phoenix, AZ 85004 or call Jean Porter, 602-417-2450.

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