

## Case of the Collapsed Compact

Who killed the CAP Compact? Like in the parlor game, suspects are many but clues are scarce. Was it Nevada Governor Bob Miller with a phone call to the White House? Was it tribal attorneys pressing water rights claims on Interior Secretary Babbitt? Could California's Congressional delegation, the traditional villain in Arizona water politics, have been involved? Or did Arizona bollix the deal itself by not providing tribes access to excess CAP water or the right to pursue out-of-state leasing, as hinted by Secretary Babbitt?

Motives and theories are as plentiful as the parties jockeying for Lower Colorado River water and power. And while the last-minute collapse of the agreement in early June has all parties pointing fingers, the Central Arizona Project Board has filed suit in an effort to resolve the repayment issues.

The major issue addressed in the compact was how much of the CAP's  
*continued on page 2*



Photo by Todd Pringle, Arizona Game & Fish. The following poetry by Alison Hawthorne Deming, Director, UA Poetry Center, is from "The Dream of a Moral Life," Science and Other Poems, Louisiana State University Press, 1994.

Driving north into fields of elk and wild grass,  
we left the city's clash and speed behind  
to watch three turkey vultures  
soar, alert, a mile above  
the pool of idling carp.  
At dusk a swallow flitted  
through the campsite — dips and upswings,  
fragments of that hyperactive song.  
The Black River ran diamond clear,  
facets cut by laser rays of Arizona sun.  
Downstream you tried to keep in sight  
the single salmon egg  
bobbing toward the rapids.

Casting into the unknown,  
you like to call the enterprise,  
glad the Apache trout and native browns  
have grown too smart for your lures.  
I flipped my z-ray across a deeper pool —  
an artifice of boulders that Fish and Game  
with a backhoe (even here!) had made.  
We wanted supper and got it.  
Two pink-fleshed stockers apiece,  
their spangled sides turned crisp  
with butter and cornmeal, the campfire  
whistling sap out of heartwood,  
while we pulled meat clear from the bone.



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\$4+ billion price tag Arizonans would repay. The CAP's position was it owed \$1.82 billion, while the federal estimate was nearly \$2.3 billion. The parties finally agreed to a figure of \$1.92 billion, but the deal fell victim to collateral issues including temporary use of Arizona's currently underutilized Colorado River allocation by California, the search for permanent supplemental water for Nevada, and unsettled tribal water issues.

The following chronology summarizes the events that led to the current impasse and pending litigation:

Aug 93 Negotiations begin on settling Arizona's CAP repayment obligation.

Nov 94 Tohono O'odham Nation and Gila River Indian Community claim that CAP discounts on surplus CAP water offered to non-Indian farmers only are discriminatory. Tribes request representation on CAP board.

June 95 Motivated by mutual distaste of proposed federal water marketing rules, Arizona, California and Nevada begin meeting to discuss water banking concepts for leasing unused Colorado River water. Arizona currently is not using some 800,000 af per year of its allocation, while California and Nevada use their entire allotments.

Feb 14 18 months of negotiations lead to agreement on how the Master Repayment Contract between Interior and the CAP will be interpreted. Arizona's repayment obligation is set at \$1.92 billion. Tribes with CAP allocations must waive their right to sue over discrimination in exchange for a \$45 million trust fund to build water distribution systems. (See Feb. *AWR*, p. 1 for agreement details.)

Mar 1 CAP and Interior jointly brief Congress on agreement.

Mar 2 Secretary Babbitt endorses agreement in interview.

Spring Arizona drops out of tri-state discussions regarding Colorado River allocations, saying it won't return without certain guarantees.

May Compact signing ceremony scheduled for June 9 in Phoenix.

June 2 ADWR Director Rita Pearson writes Secretary Babbitt outlining conditions for Arizona's return to the table to discuss marketing of Colorado River allocations. Letter demands assurances that the law of the river will not be modified.

June 8 Nevada Governor Bob Miller calls President Clinton to discuss Las Vegas's need for water.

June 8 Babbitt abruptly returns to D.C. without signing the compact.

June 16 ADWR Director Pearson blames Nevada Governor Bob Miller for pressuring President Clinton to kill the repayment deal so as to improve Nevada's position in ongoing negotiations over Colorado River allocations.

June 21 CAP Board of Directors' Executive Committee votes unanimously to file suit against the federal government over unsettled issues involving CAP repayment. CAP officials claim the suit will focus discussions on the single issue of repayment responsibilities.

June 26 Western Governors' Association passes a resolution stating that "any administrative decisions intended to improve the operations of the Colorado River must comply with the law of the river and should not be undertaken without the unanimous consent of all affected parties."

*continued on page 6*

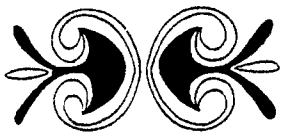
## California Steals Water, Leaves Arizona's Jug Half-Empty



*(photo: Bureau of Reclamation)*

In *Northwest Passage*, a history of the Columbia River, author William Dietrich describes the 1951 ceremonial opening of the Grand Coulee Dam. Anxious that the project be viewed as an American monument benefitting all states, not just the Northwest, the Bureau of Reclamation solicited a jug of water from the governor of each state. Forty-eight apple princesses, representing the 48 states, each wearing a full-length gown, poured the jugs of water into the main canal of the Grand Coulee Dam during its opening.

Alas, one apple princess had only a half-filled jug, Arizona's contribution to the affair. Governor Howard Pyle provided the half jug, claiming that greedy California had stolen the rest from the Colorado River.



## Water Vapors

This issue brings mail, email and phone correspondence from readers.

### AWR as Comedy

Joe Ervin from a Water Center in the midwest emailed the following: I just received your March newsletter (things move pretty slow up here in Michigan), and wanted to compliment you on the publication, especially the humor and quality of the reporting and writing. While our staff produces a good newsletter, there is a distinct lack of humor or risk taking with water-related issues. It was refreshing to read your newsletter, and I look forward to finding more recent issues buried on someone's desk. Thanks!

### AWR as Tragedy

Roger Manning, Executive Director of the Arizona Municipal Water Users Association, took exception to a January AWR feature describing Consolidated-Geare's proposed sale or lease of Colorado River water to out-of-state buyers. Mr. Manning presents his objections:

The article states "The Arizona Department of Water Resources thus far has blocked any proposed interstate sales or leases. Officials of Consolidated-Geare, the district's major land owner, therefore are unable to negotiate water contracts." These statements present a number of problems:

1- It is the Colorado River Compact and the Law of the River which precludes the type of interstate water transfer envisioned by Geare, not DWR. DWR is simply protecting Arizona's interests by enforcing the law.

2- To my knowledge, Consolidated-Geare is not even a major land owner in the Cibola Irrigation District, let alone the major land owner. Geare apparently only has "options" to buy land and associated Colorado River contract rights. The exercise of the

options, however, is contingent upon a clear ability to market those Colorado River contract rights across state lines. It should also be noted that while Cibola may have a contract diversion right of 24,000 acre-feet, they have a consumptive use of only about 14,500 acre-feet and only this consumptive use amount could be moved in any legal transaction.

Page 2 of the article contains the most frustrating and inaccurate statement: "Arizona has more water than it can presently use or pay for." While CAP agriculture will not be able to meet its original contract and financial obligations to the CAWCD, I fail to understand how anyone who has been paying any attention to the actions of the CAWCD could conclude that Arizona can't meet its responsibilities. The CAWCD has developed a water pricing schedule and financial package which guarantees payment of our CAP obligations.

### Time, Temperature and Groundwater Depletion

John Gay of Las Quintas Serenas Water Company called to suggest that information about Tucson's dropping water table be better publicized by routinely reporting rates and amounts of groundwater depletion along with current precipitation rates and temperature averages. He believes this would help people to take conservation more seriously. Apparently, Mr. Gay doesn't appreciate the significance of conspicuous consumption. Read on.

### Rising Tide of Civilization

Water flows again in the ancient Peruvian city of Machu Picchu. Its fountains splash and gurgle with water due to the efforts of researchers who believe that by measuring the flow and capacity of the city's water works, they can estimate its population and determine how its people lived. That doorside fountains delivered seven gallons per minute demonstrates an impressive level of civilization.

Gordan McEwan, director of the New World department at the Denver Art Museum, who has directed field work in Peru for 20 years, says, "By measuring the water, we can determine their use of the resource that made their empire go."

This is a troubling concept to Tucsonans. If water use *does* determine levels of civilization, then not only are Tucsonans' claims of moral superiority in doubt, we're less civilized than Phoenicians! And, by extension, the pleasure palaces of Vegas are the pinnacle of "western" civilization! Surely such civilizations are doomed to end, not with a bang, but a gurgle.

### Coming in Future Issues

AWR resumes its monthly publication schedule with the August issue. Stories we are working on include a new remediation approach for TCE-contaminated groundwater and trends in water development fees.

As always, your letters, faxes and email on previous issues and new story ideas are welcome.



*Arizona Water Resource* is published 10 times per year by the University of Arizona's Water Resources Research Center. AWR accepts news, announcements and other information from all organizations concerned with water. Material must be received by the 14th of the month to be published in the following month's issue. Subscriptions are free upon request.

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## News Briefs

### Tucson Voters to Take on CAP

The saga of Tucson and Central Arizona Project water continues, as a successful initiative gives voters a chance to decide during the City's Nov. 7 general election on a measure to restrict Tucson's use of CAP water. Backers of the initiative collected 17,406 valid signatures, easily surpassing the required 10,938 signatures to place the measure on the ballot.

The initiative would prevent Tucson from delivering chemically treated CAP water to area homes for at least five years. Instead the city could either pump CAP water into streams and basins, irrigate with it, or pay miners and farmers to use it.

The initiative also restricts the City to using "only groundwater from unpolluted sources." Currently, water from the Tucson Airport Remediation Project, which is air-stripped to remove TCE, constitutes nearly 10 percent of the potable supply.

Initiative opponents fear it would limit legitimate options for using CAP water, increase water bills, potentially cause the city to violate state water regulations and force a shutdown of some groundwater wells.

Tucson Water commissioned a study that indicated that passage of the initiative could cost the city about \$550 million. Two assumptions underlie the report: the initiative would force closure of 121 wells, cutting off 68 percent of the city's water-delivery capacity. This in turn would force the city to clean its entire CAP allocation using membrane filters partly to compensate for the loss of wells.

Supporters of the initiative say the assumptions are false. They claim the initiative would increase a typical Tucson Water user's bill by no more than \$2 per month—and might even decrease it by that amount.

Opponents are weighing a legal challenge, while the City Council considers placing a rival initiative on the ballot. The less-restrictive measure would require recharging as much CAP water as possible and resolving problems of hardness and salinity.

If the initiative were to pass, its impact on use of CAP water may be minimal. Recommendations by Dames & Moore based on a study of Tucson's CAP use options call for limited deliveries of CAP-groundwater blends by 1997, with wide-spread deliveries of CAP water phased in between 2000 and 2003.

### Clean Fun Returns to Lake Havasu

Clean water and large crowds are the norm at Lake Havasu's beaches this summer. The popular resort area was plagued by high levels of coliform bacteria last summer, which forced beach closings. While no bacterial source was pinpointed, high temperatures and low water levels were suspected of contributing to the problem.

Hot weather started later this year. More importantly, the U.S. Bureau of Reclamation agreed to limit releases from Parker Dam, located some 20 miles downstream, resulting in high lake levels. The improved water quality and positive publicity from MTV's coverage of spring break activities in March have combined to produce a banner year for area merchants.

### Roosevelt Dam Boosts Power Output

The Theodore Roosevelt Dam is back in the hydropower business. A new turbine recently began operating, just in time to provide power to Salt River Project's customers during peak summer months. The 84-year-old dam has not been generating power since September 1992 when facilities were shut down to replace a 19-year-old turbine.

The new 50,000-pound turbine is shaped like a giant ship's propeller,

with 13 large blades to harness the energy of flowing water. A large steel pipe, more than 12 feet in diameter, delivers about 2,000 cubic feet of water per second to the turbine.

The force of the water rotates the turbine, turning the generator to produce electricity. The new turbine will produce 36 megawatts of power — enough for about 10,000 SRP residential customers during periods of average electricity use.

Replacing the turbine is one part of the U.S. Bureau of Reclamation's \$430-million dam modification project begun in 1988. The project, which is one of the largest dam-construction projects in the nation, also involved raising the height of Roosevelt Dam by 77 feet to provide 1.8 million acre-feet of flood-control and dam-safety storage and an additional 250,000 acre-feet of water-conservation storage. Work on the project is expected to be completed by early 1996.

The SRP is metropolitan Phoenix's largest supplier of electricity and Arizona's largest supplier of water. SRP's hydropower capabilities have been reduced by about one-sixth with Roosevelt Dam off-line. Horse Mesa, Mormon Flat and Stewart Mountain are other dams with hydro-generating capabilities.



*The new and improved Roosevelt Dam (Photo: Courtesy Salt River Project).*

## Metro Water Pays Fine, Initiates Suit

The Arizona Department of Water Resources recently fined Metro Water District, which serves northwest Tucson, \$3,600 for failing to log water usage during 1993 as required by state law. ADWR reduced the original fine of \$14,400 after Metro officials agreed to install meters on 36 wells. The district still could be liable for the entire \$14,400 fine if any more measuring violations occur during 1995 or 1996.

In a reversal of roles, from guilty to aggrieved party, Metro Water has filed suit against the City of Tucson in a battle over customers. The suit claims the city breached an agreement made when the city sold the Metro Water Company to the district. The agreement limits the city to serving only those customers receiving city water at the time of the agreement, September 1992. At issue is the Rancho Arboleda subdivision; Tucson Water has been providing water to the 100-lot project.

In another development the Metro Water District has implemented a water conservation plan in an attempt to meet a state deadline for reducing per capita water consumption from 202 gallons per day in 1994 to the target level of 169 gallons. Failure to meet the target consumption this year could lead to additional fines.

## Water Company Faces CAP Troubles

The Arizona Water Company warns that unless current Casa Grande and Coolidge water users share the water costs of future development, the company may not continue its designation of Assured Water Supply for the area after 1999. Further, the water company may lose its CAP allocation.

Under current Arizona rules, the company's application for redesignation as an assured water supply provider allows the company some options for water sources for three years. To

continue the designation after the three-year period, however, the company must provide half its water from a source other than groundwater.

The company now pumps 8,000 acre-feet (af) of groundwater annually in Casa Grande. If only 4,000 af were to be pumped after 1998 and a \$90 replenishment tax paid for the other 4,000 af, the company would greatly increase its operating costs. Current rate increases could help offset such future costs, a strategy not likely to win the approval of the Arizona Corporation Commission.

If the Arizona Water Company does not continue its designation of an assured water supply, subdividers would have to join the Central Arizona Groundwater Replenishment District. Each subdivision lot then would be taxed to pay the cost of replenishing any excess groundwater used by occupants.

Further, company officials fear future costs may threaten its Central Arizona Project allocation. The company applied for a CAP allocation in the early 1980s with the expectation that CAP holding costs would be \$7 per af. The holding cost, however, has increased to \$30 per af.

Holding Coolidge's 2,000-af CAP allocation and Casa Grande's 8,800-af allocation cost \$200,000 this year. The cost will increase to \$300,000 next year and \$400,000 the following year. Company officials believe such cost increases should be included in current water rates. But the ACC has held firm to the policy that present water users are not to pay holding costs for CAP water not currently being used.

AWC officials say the issue is a concern to all private water companies. They claim ACC is reallocating CAP out of rural communities, to the benefit of urban areas.

## Illegal Dumping Pollutes Public Lands

Add one more use to the multiple uses of U.S. Forest Service lands: the illegal dumping of hazardous materials. With hazardous waste becoming more

difficult and expensive to dispose of legally, more westerners are dumping materials on U.S. Forest Service lands.

For example, last spring someone dumped several drums of cleaning fluid in the Verde Valley within the Coconino National Forest in central Arizona. Some 30 cubic yards of contaminated soil needed to be removed, at a cost of \$20,000, to keep the chemicals from seeping into the nearby Verde River.

The number of such crimes is increasing. Coconino National Forest officials reported 10 incidents of illegal dumping of hazardous materials in 1994. Officials investigated five additional incidents during the first three months of 1995. While nearby Prescott National Forest averaged one illegal dumping incident per year a few years ago, at least five such incidents were reported last year.



Incidents of illegal dumping of hazardous materials are occurring more frequently because of stricter regulations about what local landfills can accept. The 1976 Resource Conservation and Recovery Act and its 1984 amendments disallowed many materials that landfills previously accepted, such as solvents, paints and old lead batteries. Also, municipalities are charging more to dispose of household waste to offset costs of meeting new federal landfill standards.

Officials suspect that the typical dumper is an individual with several years' accumulation of old paint products, garden pesticides, and engine fuel. Officials also believe that some owners of small businesses illegally dump hazardous materials to avoid the increasing cost of proper disposal.

Illegal dumping occurs more frequently in forests located near urban areas. Disposed materials often include used motor oil, paints, cleaning solvents, gasoline and asbestos-contaminated roofing shingles. The hazardous materials pose various environmental problems including contaminating groundwater and wells.



## Legislation & Law

### AZ CDC Takes on EPA over Water Standards

Arizona's Constitutional Defense Council has targeted surface water quality standards as an issue over which to challenge federal primacy. The three-member council, created to challenge federal regulatory power within Arizona, will challenge efforts by the U.S. Environmental Protection Agency and non-governmental organizations to set surface water standards.

Arizona's water quality standards have been approved by the EPA, but the Center for Law in the Public Interest sued in 1992, claiming the standards were insufficient to protect the environment and asking a judge to require EPA to impose stricter standards. States traditionally have the authority to pass their own standards, so long as they meet or exceed federal guidelines.

The CDC is seeking partners to join with it in pursuing the lawsuit.

### Tribal Water Rights Settlement Reached

In what has become an increasingly rare event, an Arizona tribe has reached an agreement on its water claims with local and federal officials. The Yavapai-Prescott tribe settlement, which took four years to negotiate, was hailed by participants as "a model of fairness" which other negotiators should emulate. No other Indian water rights settlements have occurred in the U.S. since 1992.

The agreement, which clarifies the water supply situation in the Prescott-Chino Valley area, allows the tribe to divert up to half of Granite Creek, drill groundwater wells, and use or sell effluent generated on the reservation. In exchange, the tribe relinquishes its water claims, which amounted to most of the water in the area.

### *Collapsed Compact, cont. from page 2*

- July 6 Babbitt agrees to meet on July 11 with Arizona's congressional delegation to discuss CAP.
- July 7 Arizona boycotts meeting of Babbitt and officials from California, Nevada and five tribes on Colorado River allocations. Mediator describes Arizona as "potentially the Saudi Arabia of the Southwest when it comes to water." Attendees adopt ground rules demanded by Arizona, including a declaration that no state's permanent Colorado River water allocations will be affected by any agreements.
- July 10 CAP's lawsuit asking for a judicial declaration of Arizona's repayment obligation filed in the U.S. Bankruptcy Court in Tucson currently handling Central Arizona Irrigation and Drainage District bankruptcy.
- July 14 Babbitt calls on Arizona officials to return to the bargaining table to discuss allocation of Colorado River water, warning that a failure to address California and Nevada concerns may hurt Arizona's position with Congress regarding CAP repayment issues.
- Late July Governors of California and Nevada write Babbitt urging renewed negotiations between Interior and Arizona over repayment issues, with no ties to water allocation discussions.
- July 26 Governor Symington and other state leaders meet with Babbitt, but no breakthrough in separating CAP repayment issues from Colorado River allocation issues is achieved. Babbitt insists allocation and tribal issues are linked in Congress, which must approve any compact.
- Sept CAP suit is expected to come to trial.

Prospects for future negotiated settlements of tribal water claims appear bleak. Proposed cuts in U.S. Bureau of Indian Affairs budget of up to one-third likely would affect federal participation in settlement negotiations. In addition, two aborted state-federal water accords in Arizona have cast a pall over prospects for settling Arizona tribes' water claims. The sudden collapse of the state's Central Arizona Project repayment compact has been blamed in part on tribal water issues (see story, page 1).

The last-minute collapse of another water agreement between Arizona and the Department of Interior last March due to tribal water settlement issues further complicates the situation. Kingman received a Colorado River allocation in 1968, at a time when it was the only incorporated place in Mohave County, despite the apparent impracticality of transporting the water to the city. In the interim, Lake Havasu City and Bullhead City grew tremendously, nearly exhausting their water supplies. Arizona's legislature passed a law creating the Mohave Valley Water Authority, allowing Kingman's allocation to be used by Lake Havasu and Bullhead in exchange for funds to develop groundwater supplies for Kingman. The agreement was halted by an Interior Department official who reasoned that if Kingman failed to use its allocation by December 31, it would revert to Interior and could be used to settle tribal claims.

### PB Pipe Suit Heads to Alabama

A class-action lawsuit seeking up to \$7 billion in damages for owners of 6 million low-cost houses containing polybutylene plumbing is gearing up in Greene County, Alabama. Poverty-plagued rural Alabama is becoming a popular place for plaintiff attorneys shopping for jurors willing to hang big settlements on large corporations. Defendants include Shell Oil and Hoechst Celanese, makers of PB pipes that have proven leak-prone in some installations (see Nov-Dec AWR, p. 1).





## Special Projects

*Individuals and organizations involved in water-related studies, pilot projects and applied research are invited to submit information for this section.*

### Tucson AMA Water Conservation Projects Funded

The Arizona Department of Water Resources, Tucson Active Management Area, recently awarded funds for 13 new water conservation projects, totaling \$150,091. A component of the Conservation Assistance Program, the grants provide funds for conservation projects that focus on reducing water consumption within the AMAs. ADWR's Director Rita P. Pearson awards grants based on recommendations from department staff and the Tucson AMA Groundwater Users Advisory Council. Funds for the program are collected from groundwater withdrawal fees. Following is a brief description of funded programs:

**Field test overwatering controller, University of Arizona, Ag/Biosystems Engineering, \$11,074.**

Funding is provided to field test an over-watering controller device. The purpose of the overwatering controller is to reduce over-irrigation. The device measures the conductivity in the soil which is related to soil moisture. By measuring conductivity to determine the water needs of plants, a more efficient watering schedule can be established. Field testing is needed under various conditions, and fifty test sites have been tentatively identified.

**Training/materials for cooling tower operations, Pima Community College, \$9,330.**

The applicant will conduct research to determine the number of cooling towers in Tucson and what information presently is available to properly manage cooling towers. Two educational videos are to be produced, one to introduce the subject and the other to be a 120-minute video presenting an interactive teaching exercise for properly managing cooling towers. Water conservation potential exists when cooling towers are properly managed.

**Water conservation workshops for professional landscape personnel and homeowners, U. of A., Cooperative Extension, Low 4 Program, \$30,623.**

Funding will support water conservation workshops to be strategically held throughout the Tucson AMA. Workshops consist of two programs: WaterSmart and SmartScape programs. Thirty WaterSmart programs, which are directed mainly at residential water users, will be conducted covering such topics as plant selection and drip irrigation. SmartScape

workshops will be conducted for property managers and will include presenters from a speakers bureau.

**Maintenance and repair training for school district turf irrigators, U. of A., Cooperative Extension, Low 4 Program, \$10,000.**

The project is to expand training now offered to the Tucson Unified School District to other school districts in the area. Some new curriculum will need to be developed for this target group because, not having received previous training, it will be at a more basic level. Most of the training will be done in the field. Audit methodology will be used to measure effectiveness of irrigation systems, and repairs will be encouraged to improve efficiency of systems. Flowing Wells, Sahuarita, Sunnyside, Tanque Verde and Tucson Unified school districts provided letters of support.

**Sub-metering and public displays on water conservation, Arizona Sonoran Desert Museum, \$4,800.**

Funding represents seed money for the museum to pursue a water conservation strategy, including sub-metering and collaboration with government and academic agencies. The conservation methods are to serve museum operations as well as promote water conservation among visitors.

**Low-flow toilet rebate program, Metropolitan Domestic Water Improvement District, \$10,000.**

As part of its water conservation effort, Metro Water District is sponsoring a toilet rebate program to encourage customers to install ultra low-flow toilets. The grant will allow the district to be more aggressive in promoting the program to reach more people with high-volume toilets. The applicant will evaluate the program by collecting follow-up and tracking information.

**Upgrade of Casa del Agua educational displays and support of part-time staffing to accommodate group tours, U. of A., Office of Arid Lands Studies, \$15,250.**

Casa del Agua, a water conservation demonstration house, recently has been attracting fewer visitors. The applicant identified two reasons for this situation: the lack of an outreach program to attract people to the facility and the somewhat dated exhibits that need to be revised and updated. Funding will support efforts at remedying the identified deficiencies.

**Tucson Water expansion of regional "Beat the Peak" summer water conservation program, City of Tucson, \$10,000.**

Funding is to support and strengthen Tucson Water's "Beat the Peak" regional activities, to include participation of water companies throughout the Tucson and Green Valley areas. Materials including printed materials, shower timers, pencils and refrigerator magnets will be developed for regional distribution to spread the water conservation message.



## Publications

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

### Riparian/Wetland Expertise Directory

Barbara Tellman, UA's WRRC and Roy Jemison, U.S. Forest Service. If you have wondered who in the Southwest is working on riparian matters and what they are doing, this new directory is for you. It lists researchers working in Arizona, Colorado, Nevada, New Mexico, and Utah, along with their areas of expertise. Researchers are from universities, state and federal agencies and private firms. The information is available on WRRC's World Wide Web Home Page (<http://ag.arizona.edu/AZWATER/>), where it may be searched and downloaded, or as a paperback publication. Free copies are available from the U.S. Government Printing Office #1995-674-899/25054 or from the Water Resources Research Center, University of Arizona, 350 N. Campbell, Tucson, AZ 85721; phone 520-792-9591; fax 520-792-8518.

### Arizona River History Sources

The first publication in WRRC's "Arizona River History Series" now is available. *Where to Find Information about the History of Arizona Rivers* is a bibliography with more than 1,500 sources of information. Topics include: technical scientific studies of channel change; memoirs of pioneer women; hydrology and geology; Spanish exploration and missions; Hohokam archaeology; beavers and beaver trapping; phreatophytes; journals from the cattle trails of the 1850s; native and exotic fish; and paleobotany. The information is available in searchable, printable, exportable computer format (DOS or Windows), on WRRC's World Wide Web Home Page (<http://ag.arizona.edu/AZWATER/>). A paperback version intended primarily for libraries also is available. For a free copy contact WRRC. (See above for address.) Computer disk version will be sent unless you request otherwise.

### Layperson's Guide to the Colorado River

This guide provides a general overview of water issues associated with the Colorado River. Prepared by the Water Education Foundation, the booklet presents a brief historical background, reviews major negotiations, lists documents significant in defining the law of the river, and provides a chronology of major events from 1849 through 1994. Significant issues for the upper basin and lower basin are discussed along with basin-wide issues such as American Indian water rights, hydropower production, endangered species and water quality. For more information contact the Water Education Foundation, 717 K St. Suite 517, Sacramento, CA 95814; phone 916-444-6240; fax 916-448-7699.

### Water Resources Data for Arizona, Water Year 1994

This U.S. Geological Survey report presents data relating to both groundwater and surface water resources in Arizona from October 1993 through September 1994. The data consist of records of stage, discharge, and water quality of streams; stage, contents, and water quality of lakes and reservoirs; water levels in selected wells; and water quality data for water from wells. Copies of the report (AZ-94-1) are limited and may be obtained by contacting Chris Smith, Water Resources Division, U.S. Geological Survey, 375 S. Euclid Ave., Tucson, AZ 85719; phone 520-670-6120.

### The Role of Recharge in Integrated Water Management

This is the proceedings of the Seventh Biennial Symposium on Artificial Recharge of Groundwater held May 17 to 19, 1995 in Tempe, Arizona. The papers presented at the symposium illustrate a variety of groundwater recharge applications, new developments, and the growing sophistication among project sponsoring agencies and regulators as well as consultants and academic researchers. Topics include management and planning issues, technical issues and approaches, fate and transport processes during recharge, and injection wells. Case studies of specific recharge projects also are included. Copies cost \$15 plus \$3 handling. To order, contact the Water Resources Research Center, University of Arizona, 350 N. Campbell, Tucson AZ 85719; phone 520-792-9591.

### WaterWiser: The Water Efficiency Clearinghouse

This cooperative project of the U.S. EPA and the American Water Works Association collects and distributes technical and general consumer information about water use efficiency and conservation to water utilities, government agencies, businesses, educational institutions, researchers and the public. Services provided include referrals, annotated bibliographies, literature searches, information packets, and fact sheets. The WaterWiser services can be accessed via Internet at any of the following addresses: Gopher server — <gopher.uwin.siu.edu>; Web site — <http://www.uwin.siu.edu>; Email — [watwiser@awwa.org](mailto:watwiser@awwa.org). For more information contact John Wright, manager, at 800-559-9855.

### Water Law: Trends, Policies, and Practice

This publication consists of sections written by various authors on "Takings and Water Rights," "Reallocation of Water Supplies," "State Water Issues," "Indian Water Law," "Federal Regulations, Reclamation, and Water Rights," and "Interstate Water Issues." The book concludes with a section on "The Future of Water Law," which includes an article by Commissioner Dan Beard of the Bureau of Reclamation on new directions for the Bureau, and an article, "A New Era in State-Federal Relations in Water Law?" by John Lesly, Interior Department Solicitor. The book is available for \$75 plus a \$5.95 handling fee from the American Bar Association, Publication Orders, P.O. Box 10892, Chicago, IL 60610-0892; phone 312-988-5522; fax 312-988-5568.





## Transitions

**E**d Fox, Director of the Arizona Department of Environmental Quality, has announced his resignation. Fox, an attorney who took over the reins of ADEQ four years ago, cited burnout and frustration in dealing with the state legislature as reasons for his departure. During his tenure, the agency stepped up enforcement activities significantly, as evidenced by a 20-fold increase in fines levied. Fox also attempted to streamline ADEQ with a series of reorganizations (see April-May *AWR*, p. 4); it is not known how his departure will affect a pending reorganization.

**Dan Beard** has announced his resignation as director of the U.S. Bureau of Reclamation. He has no announced job plans. Under Beard's two-year tenure, the Bureau's staff was reduced by 20 percent, its budget cut by over \$100 million, and its mission redefined from water resource development to water resource management.

Beard is the fifth top Interior official to resign in recent months. Along with the departure of Assistant Secretary for Water and Science Betsy Rieke, Beard's loss leaves a void in Interior Secretary Babbitt's water policy ranks.

Informed sources report that Beard will be replaced by **Eluid Martinez**, who resigned last December as New Mexico's Acting State Engineer. Rieke, who left in June to take over the Natural Resources Law Center at the University of Colorado, has been replaced on an acting basis by **Patricia Beneke**, Interior's Associate Solicitor for Energy and Resources.

**Sid Wilson**, General Manager of the Central Arizona Project, and **Kim W. MacEachern**, Director of the Water Quality Division at Arizona Department of Environmental Quality, have joined the Water Resources Research Center's External Advisory Committee. MacEachern replaces **Brian Munson** on the Committee; the CAP was not previously represented. The External Advisory Committee provides advice and guidance on WRRC programs and publications, and ranks pre-proposals for federal 104(b) grants.

**Duncan Patten** has retired from the Center for Environmental Studies at Arizona State University. He and his wife Eva plan to spend more time at their ranch in Montana. Both Pattens have been deeply involved in Arizona water issues, particularly issues involving riparian habitat. Duncan participated in studies of the effect of dam releases on the ecology of the Grand Canyon. He is past-president of the Ecological Society of America, and was instrumental in forming the Arizona Riparian Council.

Eva Patten is a former employee of the Nature Conservancy. She serves on the Groundwater Users Advisory Committee, Arizona Department of Water Resources, and

recently was honored by the Arizona Department of Environmental Quality for her work to protect Arizona's environment.

**Frank Waters** died June 3 at the age of 92. Waters was a novelist and chronicler of the Southwest, a role that led him to write occasionally about Western water topics. His history of the Colorado River, *The Colorado*, was published in 1946 as the 30th volume in a "Rivers of America Project" for the Work Progress Administration (WPA). Waters describes the river in almost mystical terms, writing that the Colorado River "belongs only to the ancient, eternal earth. As no other, it is savage and unpredictable of mood, peculiarly American in character." Waters also wrote a 1942 novel, *The Man Who Killed the Deer*, a book that helped persuade federal authorities to return to the Pueblo Indians 48,000 acres of Blue Lake country.

**Denise Meridith** has been named director of the Bureau of Land Management's Arizona operations. As such, she is responsible for operations on 14.2 million acres of public lands and 17.5 million acres of mineral estate in the state. Meridith comes to Arizona from a position of Deputy Director of BLM in Washington, D.C. She will be responsible for a \$35 million budget and 560 BLM employees in Arizona operating out of 10 resource area offices.

**Renee Eastman** has joined the Salt River Project as manager of federal affairs. The Capital Hill veteran formerly represented Sun Company, an independent oil refiner. Eastman will head SRP's Washington, D.C. office, which monitors federal legislation and serves as liaison to federal executive branch agencies.

*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.



## Announcements

### AHS Symposium in Tucson

The Arizona Hydrological Society's 8th Annual Symposium, "Water Use in Arizona, Cooperation or Conflict," is to be held September 14-16 at the Holiday Inn City Center, Tucson. Topics to be covered include agricultural management, border issues, CAP issues, constructed wetlands, infiltration, natural resource damage, methods in hydrology, mining issues, modeling/computer applications, policy issues, remediation/contamination, riparian issues, tribal water management, and water harvesting. Early registration must be received before September 1. For more information contact Suzanne Kirk, Dames and Moore, 7500 N. Dreamy Draw Dr., Suite 145, Phoenix, AZ 85020; phone 602-861-7452; fax 602-861-7431.

### EPS and Hydrologist Positions Open

Arizona Department of Environmental Quality's Aquifer Protection Program Section invites resumes for Environmental Program Specialist (EPS) and Hydrologist II positions. As a project manager, the EPS oversees and collects necessary information to write Aquifer Protection Permits (APPs) addressing complex groundwater protection problems. Responsibilities include project management and evaluating multi-disciplinary scientific data. The Hydrologist II provides technical support in evaluating APP applications and writing permits. Responsibilities include evaluating hydrologic data and implementing groundwater contamination and assessment activities. Both positions require effective oral and written communication skills. Submit resumes to ADEQ, Attn: Human Resources Section, 3033 N. Central Avenue, Phoenix, AZ 85012. No phone calls please.

### Invasive Plants Conference Set

The Third International Conference on the Ecology and Management of Invasive Riparian and Wetland Plants (ecom3) will be held October 25 through 28 at Arizona State University, Tempe. The conference, sponsored by ASU's College of Architecture and Environmental Design, will focus on the ecology of European and Asian plants that have become particularly harmful to North American habitats and also on strategies for management and control. Cost is \$150. For more information contact Dr. John H. Brock, School of Planning and Landscape Architecture, College of Architecture and Environmental Design, Box 872005, ASU, Tempe, AZ 85287-2005; phone 602-965-7036; fax 602-965-9656; email atjhb@asu.vm.inre.asuedu.

### Wetlands Conference Scheduled

The Society for Engineering in Agricultural, Food, and Biological Systems and the American Water Resources Association are holding a national conference, "Versatility of Wetlands in the Agricultural Landscape," September 17-20 at Tampa, Florida. Conference sessions will cover such topics as wetland identification and classifications, restoration, riparian systems, constructed wetlands, regulatory and policy issues, land use/landscape planning, and wetland hydrology. For more information contact ASAE Meeting Department, 2950 Niles Rd., St. Joseph, Michigan 49085-9659; phone 616-429-0300; fax 616-429-3852.

### Upcoming Indian Water Rights Symposium

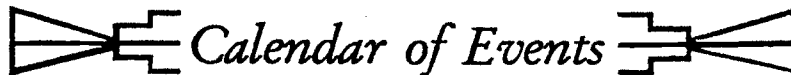
The Western States Water Council and Native American Rights Fund are holding a "Symposium on the Settlement of Indian Reserved Water Rights Claims," September 6-8 at the Red Lion, Jantzen Beach, Portland, Oregon. A primary focus of the symposium is marketing of tribal water rights. Participants include experts in ongoing negotiated settlements and congressional staff and federal representatives. For more information contact WSWC, Creek View Plaza, Suite A201, 1942 East 7145 South, Midvale, Utah 84047; phone 801-561-5300; fax 801-255-9642.

### Heritage Grants Workshops Scheduled

Heritage Grant workshops currently are being conducted to provide information about funding programs for habitat, public access, environmental education, school grants and IPAM (identification, inventory, acquisition, protection, and management of sensitive habitat). Grant application manuals are available at the workshops, which are scheduled for: August 1, Flagstaff; August 3, Phoenix; August 15, Yuma; August 22, Kingman; August 30, Tucson; and August 31, Sierra Vista. Sessions are from 1:00 to 4:00 p.m. at all locations, except at Sierra Vista, to be held from 5:30 to 8:30 p.m. If you plan to attend a session or need more information call 602-789-3520.

### Conference Announcement

The Engineering Foundation will hold its seventh conference on "Risk Based Decision Making in Water Resources," October 8-13 at Santa Barbara, California. The program tentatively includes sessions on basic evaluation/decision issues, risk of extreme events, uncertainties in data, models and forecasts, risk analysis frameworks, hazardous waste, and the impact of potential climate change. For registration information contact Engineering Foundation Conferences, 345 East 47th St., Suite 303, New York, NY 10017; phone 212-705-7836; fax 212-705-7441; email engfnd@aol.com.



## Calendar of Events

### RECURRING



**Arizona Hydrological Society (Flagstaff).** Next regularly scheduled meeting will be in Aug./Sept. Meetings in summer by announcement. Contact: Don Bills 520-556-7142.

**Arizona Hydrological Society (Phoenix).** Next meeting will be held in October. Contact: Rich Petrus 602-966-2337.

**Arizona Hydrological Society (Tucson).** Tucson Chapter's First Annual August Picnic at Peter Livingston's house on Saturday, August 19. 4:00 p.m. until it's over. RSVP to Laura at SWCA 520-325-9194.

**Arizona Water & Pollution Control Association.** Monthly luncheon meetings will resume in the fall. Contact: Brad Jurkovic 520-791-2544.

**Arizona Water Protection Fund Commission.** No meeting in August. Two-day meeting September 25th & 26th at ADWR, 500 N. 3rd. St., Phoenix. Contact: Trish McCraw 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: Eileen Miller 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.** September 6, 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.** August 17, 1:30 p.m. Pinal AMA Conference Rm., 1000 E. Racine, Casa Grande. Contact: Dennis Kimberlin 520-836-4857.

**Prescott AMA, GUAC.** Date to be announced, 2200 E. Hillsdale Rd., Prescott. Contact: Phil Foster 520-778-7202.

**Santa Cruz AMA, GUAC.** September 20, 9:00 a.m. Santa Cruz AMA Conference Rm., 857 W. Bell Rd., Suite 3, Nogales. Contact: Placido dos Santos 520-761-1814.

**Tucson AMA, GUAC.** August 25, 9:00 a.m. Tucson AMA Conference Rm., 400 W. Congress, Suite 518, Tucson. Contact: Kathy Jacobs 520-628-6758.

**Verde Watershed Association.** To be announced. 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



**Public Meetings.** ADEQ has scheduled public meetings to present its draft rule changes for water quality standards, Arizona Administrative Code, Title 18, Chapter 11, Articles 1 and 2. Meetings are as follows: August 16, City of Show Low City Hall, 200 W. Cooley, Show Low; August 17, Safford Library, 808 7th Ave., Safford; August 22, Sedona Public Library, 3250 White Bear Rd., Sedona; August 23, City of Yuma City Hall, 180 West 1st St., Yuma; August 24, Community Aquatics Center, 100 Park Ave., Lake Havasu City; August 29, ADEQ, 3033 N. Central Ave., Phoenix; and August 31, North Building, Room 222, 400 W. Congress, Tucson. All meetings will be held 7-9 p.m.

**October 6-8, AHS Canyon de Chelly field trip.** A weekend of natural and native history featuring speaker Mike Johnson, Fort Defiance Water Res. Dept., a cookout, and an optional jeep tour. For more information, contact Kurt Zeppetello, 602-207-4410, or Christie O'Day, 602-379-3087.

**October 19 & 20, Third Annual Southwest Public Power and Water Symposium, Arizona - California - Nevada.** For details, or to register, call 510-284-3780.

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

*Special Projects, continued from page 7*

**Develop interactive, multi-media database for Xeriscape plant materials and techniques on CD-ROM, U. of A., Water Resources Research Center, \$20,091.**

The project involves gathering all existing material on Xeriscape vegetation and techniques developed by organizations and agencies in Pima and Maricopa counties to include on a CD-ROM. The multi-media database will include photos, sounds, pronunciation of the botanical names of plants, etc. Specific information can be searched; e.g., ground covers native to the Sonoran Desert or other specific types of vegetation. The CD will be widely distributed, and electronic kiosk versions will be placed at demonstration gardens, arboretums and other public places.

**Educate kids grades 1-8 on water conservation and water issues through the "HydroSmarts" program in kids newspaper, Kids View Communications Corp./"Bear Essential News," \$10,920.**

The funds are to support "Bear Essential News" water conservation efforts. A free newspaper written for children, "Bear Essential News" has a circulation of about 60,000, with 80 percent of the students in the Tucson area, grades one through eight, receiving the publication. Water conservation information is presented, with children encouraged to get actively involved by becoming official HydroRangers. HydroRangers now number 11,000. The goal is to instill good water habits at an early age and to get children to actively think about how to conserve water.

**Develop two types of low-cost water cisterns for harvesting rainwater, made from commonly available components, Dan Dorsey, \$975.**

Project is to develop two types of low-cost water cisterns to be built with materials readily available at hardware stores. Only basic tools would be required — saw and hammer — and the cisterns could be assembled in a single afternoon and set up under gutters to harvest rainwater. The water conservation cause would be well served by encouraging homeowners to build a low-cost water harvesting system. Assuming the average house roof is 1,500 square feet, 8,500 gallons can be harvested per year.

**Video on uniform and efficient irrigation for agricultural irrigators in English and Spanish, SWCA Inc., \$12,000.**

The project is to provide training to irrigators who often are untrained in the most efficient techniques of irrigation. Water conservation would result from the application of more efficient irrigation practices. The irrigator is targeted but expectations are that the farm manager also will view the video.

**Develop hands-on groundwater models, curriculum and host a teacher/student career day, Arizona Hydrological Society, \$5,100.**

One hundred hands-on groundwater models are to be constructed for distribution throughout Tucson schools. To ensure they are effectively used, a symposium will be conducted involving teachers and students. The symposium also will serve as a career day.

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