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FEBRUARY 2011 NEWSLETTER

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VIEWPOINT: THE NEW YEAR BEGINS

Things are looking up! Water levels at Lake Mead have risen several feet, and the imminent threat of a declared shortage has abated somewhat. The SRP reservoirs enjoy high water levels as well. The snowpack on the Colorado Plateau is pretty good, and if we get a couple of more storms, we should be doing OK.

The small but mighty Flagstaff Chapter has planning for our 2011 Annual Symposium well underway, with the theme of "Watersheds Near and Far." At least two outstanding field

trips are planned. In the near future you should get a postcard setting the deadline for abstract submission—post it on your bulletin board as a reminder of the September 18-20 event at the High Country Conference Center in Flagstaff. We met there in 2008, and it is a great venue for our Annual Symposium. And planning for the 2012 Symposium in Phoenix continues to advance as well.

The Phoenix Chapter is planning a surface water seminar for later this spring. It has been a couple of years since this topic was addressed, and it is time to revisit the subject. This will be a fund-raiser for the Hermann Bouwer Internship program.

At the January meeting in Tucson, the AHS Corporate Board looked at our financial situation, and while we did not do so well last year, we are in no danger of disappearing. Your Society will continue to function. We have sufficient financial reserves to continue to fund our scholarship and internship programs. Student interest in our programs has been steadily rising; we are on their map.

And it functions best at the Chapter level. By attending Chapter meetings and participating in Chapter planning and activities, you build up your Society and yourself by networking with all the other members. It's the best way to keep up with what is going on in our hydrologic world. We're looking for you!

Alan Dulaney,

AHS Corporate Board President, 2010

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GOVERNMENT GOINGS-ON

Get your children inside and lock the doors—the Arizona Legislature is once again in session. We can expect another Wild West ride in multiple directions. Fortunately tinkering with the water world does not seem to rank as high this year as restricting the Federal government. The Legislature will once again have to put together a budget for the next fiscal year, and repair the budget for this fiscal year. But the supply of band-aids is getting low, so I would look for last-minute draconian cuts behind closed doors. That might explain the striker bills that have been introduced, though their number doesn't seem unusually high.

There are some bills of interest. HB12122 would create an energy policy study committee. Given the close ties between water and energy, with the rising costs of each likely to exacerbate the costs of the other, this commission would be worth following, if set up. HB2393 and SB1219 both allow emergency transfers of groundwater between basins during a drought emergency. These bills essentially make the authorization permanent, whereas in past sessions the same language had to be passed each year as a one-year authorization. HB2527 would require the new owner of a well to record well information with the county recorder when property is transferred. Transfers of well ownership are supposed to be recorded with ADWR now, but Change of Well Information forms are only rarely sent in, which of course means that self-reported well information in the Wells55 database becomes increasingly inaccurate as time moves on. Requiring the information to be reported to the county recorder as part of any transfer of property would result in accurate ownership and location information that then could be incorporated into the Wells55 database. Unfortunately the bill seems unlikely to advance.

And the Senate has before it a resolution, SCR1015, which would redefine navigable waters and give Arizona sole jurisdiction over non-navigable waters in the state. This

would obviously have major implications for ADEQ enforcement of the Clean Water Act, among others. Voters would have to approve the change to the state constitution at the next general election. We will watch this one.

One of the best Websites to follow water-related bills in the Legislature is the Arizona Municipal Water Users Association site: http://www.amwua.org/leg_sum_tracking.html. Jason Baran does an excellent job of tracking legislation from the municipal point of view; I recommend it.

Alan Dulaney,

AHS Corporate Board President, 2010

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NOMINATIONS DUE FOR 2011 AHS LIFETIME ACHIEVEMENT AWARD

-Brad Hill, City of Flagstaff

The Corporate Board of the Arizona Hydrological Society (AHS) is seeking nominations from AHS members for the 2011 AHS Lifetime Achievement Award. Any AHS member or a non-member can be nominated for the award. The award consists of a personal recognition plaque, a rotating plaque listing all past recipients and a \$500 check to an Arizona educational organization of choice by the award recipient. The award is presented at the Annual Symposium to honor an individual who has contributed to AHS, the science of hydrology within Arizona and/or has received national fame for their contributions in the hydrology field.

Past recipients of this prestigious award include: Leonard Halpenny (1995), Dr. Eugene Simpson (1996), Dr. Herman Bouwer (1997), Dr. Sol Resnick (1998), Dr. Errol L. Montgomery (2001), Herbert H. Schumann (2002), Dr. L. Gray Wilson (2003), Gary L. Small (2004), Gail Cordy (2006), and Nick Melcher (2009).

Lifetime Achievement Award nominations can only be made by current AHS members. Please refer to the Symposium section of the [AHS website](#) for more information about the award and how to complete a nomination on-line or download a paper version of the nomination form. This section of the AHS website will be updated shortly with current year forms and other information. Your nomination must be submitted by **July 1, 2011**.

Please contact Brad Hill at (928) 779-7685 or bhill@flagstaffaz.gov if you need more information or visit the AHS website under Lifetime Achievement Award about the four selection criteria.

AHS CORPORATE BOARD UPDATE

The AHS Corporate Board met for the 2011 first quarter meeting in Tucson at the SAHRA offices in the Marshall Building on the UA campus. New corporate board officers for 2011 were elected:

President: **Alan Dulaney**, City of Peoria

Vice-President: **Mike Hulst**, EEC

Treasurer: **Beth Proffitt**, Accutest

Secretary: **Marla Odom**, M&A

Remember that all AHS members are welcome and encouraged to attend corporate board meetings – you can contact [Alan Dulaney](#) or [Christie O'Day](#) if you have any interest. Minutes from all the board meetings are posted on the AHS web site at <http://www.azhydrosoc.org/MemberResources/MemberArchives.html> when they are finalized.

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AHS MEMBERSHIP RENEWAL REMINDER

It already February so please renew your AHS membership if you haven't already. For those of you who attended this year's annual symposium, your 2011 membership was included in both the full registration and a one day symposium registration fees.

Membership dues can to be renewed online at:

http://www.azhydrosoc.org/join_ahs.html

Or by mail the membership form to:

Arizona Hydrological Society

P.O. Box 1882

Higley, AZ 85236

Thank you for your continued support of the Arizona Hydrological Society!

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PHOENIX CHAPTER NEWS

The next Phoenix chapter dinner meeting will be held on Wednesday, February 9, 2011, at the SunUp Brewery near downtown Phoenix. Please join us for a beverage, to share business cards, and talk water! Please note the change in traditional day for meeting!

Location:	SunUp Brewery 322 E. Camelback Road Phoenix, AZ 85012
Event:	<i>Monitoring in the Ahupuaa</i> Michael Tomlinson, SOEST, University of Hawaii at Manoa
Chapter Board Meeting:	4:30 PM – 5:30 PM
Happy Hour & Dinner:	5:30 PM – 7:00 PM
Program:	7:00 PM – 8:00 PM
Cost:	\$15 member, \$20 non-member, \$5 student

RSVP with Kirk Creswick at kcreswick@eecphx.com or 602-248-7702.

Hope to see you there!

Michael Tomlinson
School of Ocean and Earth Science and Technology (SOEST)
University of Hawaii at Manoa (UHM)
Honolulu, Hawaii

The ancient Hawaiian concept of the ahupuaa is analogous to the modern concept of a watershed but extends natural resource stewardship from the mountain summit to the outer edge of the offshore reef system. For the last 12 years, Mike Tomlinson has monitored the hydrology and water quality of ahupuaa on the island of Oahu, Hawaii, first as a graduate student at UHM, as a Hydrologist for the USGS on the NAWQA Program, and finally as a staff oceanographer with the UHM Pacific Islands Ocean Observing System (PacIOOS). During his last 2 years as an oceanographer on PacIOOS, his work has been conducted from Flagstaff, AZ, where he processes and analyzes data, produces data products, and collaborates on manuscripts all via the Internet.

This presentation will describe the UHM watershed monitoring program employing automated stations to monitor stream flow and water quality with flowmeters, multiparameter water quality Sondes, and robotic water samplers; manual trace metals clean sampling; and Mike's thesis research completed in 2004 on passive samplers that employ diffusive gradients in thin films (DGTs) to obtain time integrated trace element concentrations in both fresh and salt water. This presentation will also describe the use of surrogates to estimate other water quality variables (e.g., turbidity to estimate suspended sediment concentration) and the need for high resolution time series data in rapidly changing aquatic systems.

The NAWQA portion of the presentation will concentrate more on the analyses of the data collected during the NAWQA Program to answer specific questions such as what controls the geochemistry of the fresh water and sediments of Oahu. Geostatistical techniques such as enrichment factors, ion ratios, and principal component analysis will be described.

Finally, the presentation will end with a discussion of the PacIOOS Program (part of the nationwide Integrated Ocean Observing System) which, since its inception, has provided UHM with the unprecedented opportunity to extend continuous environmental monitoring, recently restricted primarily to land based installations, into the near-shore ocean: in other words -- the entire ahupuaa. This network of land- and ocean-based environmental monitoring stations provides a unique opportunity to study the effects of storms, other natural phenomena, and accidental pollutant releases on the near-shore waters of Oahu, Hawaii. The ocean-based PacIOOS network consists of water quality, wave, and ocean current sensors mounted near the shore, on buoys, and on the seafloor, and supplemented with manual sampling. This presentation will show that even storm runoff from a relatively small, partially urbanized watershed can profoundly affect the coastal ocean for periods ranging from only a few days to more than a month. It also will show that antecedent conditions are important, and that an understanding of lag times between rainfall and changes in near-shore water quality can contribute to an effective early warning system to protect the people using Hawaii's popular recreational beaches. The presentation will close with a discussion of some of the challenges presented when integrating large quantities of data from diverse sources collected at disparate time intervals (from 4 to 30 minutes), some problems encountered and possible solutions, and suggestions for future monitoring efforts.

For hand-outs, please [click here](#). For presentation, please [click here](#).

Future Event Calendar (see also calendar at <http://www.azhydrosoc.org/calendar.html>)

· March 3 – 2011 **Student/Professional Meet and Greet**, 5:30 pm at ASU, sponsored

by the ASU Geoclub

- March 8 – ***Florence In-Situ Leach Mine***, Mel Lawson, Curis
- April 12 – **AEG/AHS Student Night** April 12th at **ASU**
- May and beyond – Anyone with a suggestion for a monthly meeting topic please contact [Tom Walker](#), Phoenix Chapter Vice President.

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TUCSON CHAPTER NEWS

February 2011 Meeting Announcement

The Tucson Chapter will meet on Tuesday, February 8, at 6PM. The meeting will be held in the Marshall Building (5th floor in the north facing conference room) at the University of Arizona. The Marshall Building is located at 845 N PARK AVE (see this link for a map location: <http://www.arizona.edu/buildings/marshall-building>). Free parking is available at metered spots along nearby streets after 5 PM, and in a lot across from the Marriott after 5 PM.

At this meeting, Lavinia Wright of ADEQ will give a presentation on the AZPDES De Minimis General Permit (DMGP), and will discuss changes from the expired 2004 DMGP to the 2010 DMGP which has replaced it. The DMGP provides a way to obtain timely permit coverage for discharges to surface waters of the U.S. from sources such as potable water systems, well development, aquifer testing, and subterranean dewatering. It also provides coverage (subject to certain conditions) for several common types of discharges including dechlorinated swimming pool drainage and charitable non-commercial car washes.

Lavinia has administered ADEQ's DMGP program since 2004. She previously managed a regional sanitary survey program in the State of Washington's Drinking Water Division, and served as a municipal water rights specialist in Washington's Water Resources Division. She earned her bachelor of science degree in Environmental Studies at The Evergreen State College, Olympia, Washington.

The meeting will be followed by a social hour with pizza and beer at NO ANCHOVIES at 870 East University Boulevard.

We are hoping to boost attendance at our meetings this year, so please try to join us. This meeting will be a great opportunity to re-connect with your fellow AHS members, and to learn more about an importing permitting program.

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WRRRC EVENT: FEBRUARY 23 BROWN BAG - SECURING WATER FOR THE ENVIRONMENT: AN UPDATE ON CONSERVE TO ENHANCE

Wednesday, 2/23/11, from 12:00 PM to 1:30 PM

Location: WRRRC, Sol Resnick Meeting Room, 350 N. Campbell Ave., Tucson, AZ

Event Summary

Speaker: Joanna Nadeau, Research Analyst, Water Resources Research Center, University of Arizona

The WRRC has been involved in efforts around the West to develop community-based support for environmental enhancement through Conserve to Enhance pilot programs. With a pilot program starting this spring in Tucson, Arizona, and many partners exploring the potential for using this mechanism in other communities, this innovative idea is spreading quickly. Come learn about how we are working to make sure that individual water conservation actions lead to major environmental benefits and more sustainable water management.

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FLAGSTAFF CHAPTER NEWS

Next Flagstaff Chapter/2011 Symposium Planning Meeting:

Date: Wednesday, February 16th, 2011

Time: 6:00

Location: Peabody Energy
3001 W. Shamrell Blvd., Suite 110
Flagstaff, AZ 86001

Bill Haneberg, the 2010-2011 Jahns Distinguished Lecturer, Geological Society of America Engineering Division, will give a talk at NAU Monday, **February 7, 4pm**, Geology Building (building 12). Contact Abe Springer at Abe.Springer@nau.edu for more details. You can park at the metered spots (orange outlines on map) at P3A (northeast of Geology building) or P16 (across from Cline Library, bldg 28). Otherwise, you can park for free within the residential neighborhood north of Butler Drive, and walk to the Geology Building.

Living la Vida LiDAR

Abstract: Airborne laser scanning, also known as airborne LiDAR, has evolved from an exotic technology to a practical tool that allows geologists to create and manipulate computer models of Earth's topography in unprecedented detail, including areas covered by dense forests or jungles. One-third—OK, two-thirds—less technical than some other LiDAR presentations, this one provides a general and visually appealing introduction to airborne LiDAR technology and some of its geologic applications, including mapping landslides and rockslides, detecting previously unknown faults, discovering abandoned underground mines, mapping archeological sites, and simulating the effects of large earthquakes and logging on the landscape.

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HYDRO-NEWS

SABINO CANYON FIELD TRIP OPPORTUNITY

Sabino Canyon Field Trip

Results and Evidence of the 2006 Debris Flows

Saturday February 5th

8:45 am to ~ 2:00 pm

Presented By

Association of Environmental and Engineering Geologists



- Ø RSVP: John Lyons-Baral, tenaya25@email.arizona.edu, 520-971-8235
- Ø \$5 per vehicle entry fee
- Ø If unable to walk 7+ miles, \$8 tram ride available
- Ø Ask about carpooling from University of Arizona departing at 8 am
- Ø You can print AZGS Trip Leader, Ann Youberg's Guide Book from [here](#)

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ARIZONA GEOLOGICAL SURVEY: NEWS RELEASE

Young fault system identified on new geologic map of Chino Valley North, Yavapai County, Arizona

Thursday, 20 January 2011

Contact: Michael Conway; 520.209.4146; Michael.conway@azgs.az.gov

The Chino Valley area in north-central Yavapai County, Arizona, is no stranger to small earthquakes, as evinced by the seismic activity of 25 December 2009. A new geologic map and accompanying report by the Arizona Geological Survey provides fresh insight into the geologic setting and geologic hazards of the Big Chino and Chino Valleys, north of Prescott, Arizona: ***Geologic Map of the Chino Valley North 7½' Quadrangle, Yavapai County, Arizona***, map scale 1:24,000.

AZGS geologists have identified a fault system along which larger earthquakes might occur. This newly discovered "Little Chino fault" borders the northeast margin of Chino Valley.

Mapping of this young fault system suggests that tectonic forces have been at work in the Big Chino and Little Chino Valleys episodically over the past several million years. This has important ramifications for basin formation, faulting, and the ongoing geologic

evolution of the Verde River and its tributaries.

AZGS geologists are now studying the geochronology or timing of recent motion along the Little Chino fault, which should inform earthquake hazard models. At the same, AZGS geologists continue mapping in the Prescott-Paulden area.

The map and report are available in PDF format at the Arizona Geological Survey Document Repository:

<http://repository.azgs.az.gov> . The GIS geodatabase is available at the Arizona Geological Survey for \$25; call 520.770.3500 for pricing of a printed copy of the geologic map.

Citation:

B.F. Gootee, C.A. Ferguson, Spencer, J.E. and J.P. Cook, 2011, **Geologic Map of the Chino Valley North 7½' Quadrangle, Yavapai County, Arizona**. Map scale 1:24,000

For more information:

Michael Conway (520.770.3500)
Michael.conway@azgs.az.gov
Arizona Geological Survey
416 W. Congress
Tucson, AZ 85701

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THE DOBSON RANCH RAINWATER HARVESTING SYSTEM



The Dobson Ranch Rainwater Harvesting System, operating now for six months, has demonstrated excellent performance; nearly twice as much of the irrigation demand has been met by rainwater versus from a domestic water source. This report on the Dobson Ranch Rainwater Harvesting System, a collaborative effort by many parties interested in water conservation, is provided to the keep the local water conservation community appraised of the ongoing performance the Dobson Ranch Rainwater Harvesting System.

The original design constrain for the Dobson Ranch Rainwater Harvesting System was to meet 50% of the irrigation needs of a medium size commercial building from rainwater harvested during

an effective average year of rain. That goal will be exceeded this year in part due to the high rain fall this year. The second half of 2010 provided much more rain than an average year; 6.9 inches

versus 2.6 inches. Heavy monsoon storms coupled with late fall storms have kept sufficient water in the retention tank to meet all the irrigation needs of the plants. Coupled with a low water demand for the winter months and the expected winter rains should continue to make the rainwater harvesting tank the primary source of irrigation water well into April, if not into May 2011.

The charts shown here are excerpted from the information provided at the Dobson Ranch website: http://www.dobsonranchhoa.com/outside_home.asp. The first chart shows the water levels in the retention tank over time, beginning July 1, 2010. The initial high summer water demand, i.e. high evapotranspiration (ET) was met by the system smart controller which soon drew down the tank water level. Fortunately, a heavy and unusual rain storm at the end of September filled the retention tank with sufficient water to carry the supply of rainwater into December. By then, the declining ET required less and less water to meet the irrigation demand. This demand will stay low until early spring. Projected rain from the winter storms should keep the tank well stocked with water until spring. The second chart indicates the amount of rain available for capture versus the amount actually captured. The intense storms of the monsoon first filled the tank with some overflow. Subsequent storms then dumped rain into a tank that was already full resulting in most of the rainwater run-off lost to overflow.

2010 was one of the wettest in many years; something under 7 inches a year typically falls on Dobson Ranch. The rainwater harvesting system is designed to provide 50% of the irrigation demand from rain water during a year with a little as 3.5 inches of annual rain fall. In 2010, 12.5 inches of rain fell. Initially, pump problems interrupted the use of rain water for a few weeks. This meant some potable water was required for irrigation purposes where none would have been the case. By the end of July the pump problem had been corrected. In spite of the pump down time, by the end of 2010, fully 60% of the irrigation demand has been met by rainwater. The expected value for the first full year of operation is expected to be well over 80%.

The Dobson Ranch Rainwater Harvesting system is now working according to plan. Plan to drop by the Dobson Ranch Rainwater Harvesting Patio and see for yourself. Please call to arrange for a tour.



Craig A. Wilson

Water Management Director, The Dobson Association

602-295-9624

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ARIZONA GREENHOUSE-GAS RULES TO BE ENFORCED BY EPA

Arizona reluctantly agrees to federal-permit program

by **Shaun McKinnon** – Jan. 2, 2011 12:00 AM
The Arizona Republic

The U.S. Environmental Protection Agency will directly enforce new greenhouse-gas rules in parts of Arizona after the state refused to submit its own program for controlling the pollutants.

The new rules, which take effect today, add greenhouse gases to the list of pollutants covered under air-quality permits and will eventually require the largest polluters, mainly industrial operations, to reduce emissions.

Arizona accused the EPA of overstepping its authority in regulating greenhouse gases and said

the state would not spend its limited resources on rules that run counter to state policy and might not survive challenges in Congress and the courts.

But the state reluctantly agreed to let the EPA impose the federal plan for now because, had the state balked, the EPA could have blocked construction or expansion of projects that need the air permits, including future power plants

Read more: <http://www.azcentral.com/arizonarepublic/news/articles/2011/01/02/20110102arizona-greenhouse-gas-rules-epa.html#ixzz1Cas0O5En>

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ARIZONA DROUGHT MAY BE EASED BY HEAVY SNOW

Spring thaw likely to raise Lake Mead levels, battle drought

Shaun McKinnon – Jan. 18, 2011 12:00 AM
The Arizona Republic

Enough snow is piling up along the upper Colorado River that the spring thaw could reverse the precipitous decline of water levels at Lake Mead and help Arizona avoid drought-related water rationing until 2015 or later.

In October, the reservoir dropped to within 7 feet of triggering drought restrictions, and hydrologists said a dry year could wipe out those last few feet. Alarmed at the prospect, the seven Colorado River states agreed to consider new drought-prevention policies. Among the ideas set for discussion: take less water from the river when rationing is imminent.



The U.S. Bureau of Reclamation says it now expects runoff from the winter snowpack to raise water levels at Lake Mead later this year, easing drought conditions at the giant reservoir, which last fall sank to its lowest level since 1937.

The lake has already risen 5 feet since Dec. 1, after a series of storms drenched southern Utah and southern Nevada. Snowpack in Colorado's Rocky Mountains is 133 percent of average overall, with some locations reporting amounts 200 percent of average.

Read more: <http://www.azcentral.com/arizonarepublic/news/articles/2011/01/18/20110118arizona-drought-colorado-river-snow.html#ixzz1CathXX00>

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ARIZONA PULLS MARICOPA COUNTY DUST PLAN TO AVOID U.S. PENALTIES

Strategy buys time to revise proposal to EPA

Shaun McKinnon – Jan. 26, 2011 12:00 AM
The Arizona Republic

Facing imminent rejection by the federal government, Arizona on Tuesday withdrew its plan to reduce dust pollution in Maricopa County; a step officials say will help the region avoid the loss of highway-construction money.

The U.S. Environmental Protection Agency was poised to formally disapprove significant portions

of the air-quality plan on Friday, leaving the county vulnerable to penalties that could have disrupted long-term road-building projects.

Those penalties remain a threat; but by voluntarily withdrawing the plan and resubmitting a revised version later, state and county officials believe they are more likely to secure EPA approval without a drawn-out fight.

"We're not giving EPA the opportunity to disapprove our plan," said Henry Darwin, acting director of the Arizona Department of Environmental Quality. "We understand there are improvements that need to be made, and we're ready to start down that path rather than continuing to battle EPA."

The state and county submitted the plan in 2007 to reduce pollution levels by 5 percent a year until federal standards were met. That plan included measures to control dust, such as paving dirt roads and more closely monitoring construction sites.

Read more:

<http://www.azcentral.com/arizonarepublic/news/articles/2011/01/26/20110126maricopa-county-dust-plan-pulled.html#ixzz1Cav7Nm7G>

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WATERBLOGGED BY SHAUN MCKINNON, ARIZONA REPUBLIC

ADWR gets a new director

Sandra Fabritz-Whitney has been named the new acting director of the Arizona Department of Water Resources, an agency hard-hit by state budget cuts in recent years.

Fabritz-Whitney has been assistant director for the department's water management division and has been closely involved with ongoing efforts to ensure that the state's cities have adequate long-term water supplies and comply with groundwater management laws,

Herb Guenther, ADWR's current director will remain at the agency as a special advisor to Fabritz-Whitney. Guenther has been director since 2003.

Gov. Jan Brewer made the announcement this morning.

Brewer and the Legislature have cut ADWR's budget by more than half over the past three years, leaving the agency with fewer than 100 employees to administer statewide water resource planning and regulation programs.

Read more: <http://www.azcentral.com/members/Blog/ShawnMcKinnon/113270>

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Save water, save the environment

A new program in **Tucson** will try to address -- in a roundabout way -- one of the most common complaints about [water conservation](#) programs: The inability to see any tangible benefits.

With [Conserve to Enhance](#), participants will keep track of the water they conserve each month, mostly using rainwater harvesting, and then donate the savings on their water bill to riparian restoration projects.

The program emerged from studies by the [University of Arizona's Water Resources Research](#)

[Center](#), which looked at environmental restoration projects and found that such projects often lacked water sources for riparian areas.

"That started this quest to get water for important projects in the environmental sector," said



Joanna Nadeau, a research analyst for the center. "One idea was to use water conservation as a source of water, since many people are already motivated to help the environment."

At the same time, water conservation programs can rarely demonstrate those immediate benefits that might motivate people to use water more efficiently. Conservation specialists often hear from folks who worry, for example, that any water they don't use will wind up on a golf course or (during the building boom) in pipelines that support new

subdivisions.

Read more: <http://www.azcentral.com/members/Blog/ShawnMcKinnon/114859>

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[Forecast: Drought to persist in lower states](#)

A series of [winter storms](#) has buried many parts of the country in snow since early December, but for the southern tier of states, drought will develop and linger well into the spring.

Blame **La Niña**, say forecasters at the **National Oceanic and Atmospheric Administration**, which issued its [seasonal drought outlook](#) Thursday. (Click on the map at right to go to a larger version) La Niña -- the cooling of the equatorial **Pacific Ocean** -- tends to steer storms to the north and leave the southwest and southeast drier than normal.

Many areas -- including parts of **Arizona** -- have already turned drier since the start of the year and the current [three-month forecast](#) from the **Climate Prediction Center** shows a strong chance for below-average precipitation across the nation's lower half.



"The speed with which the [drought](#) developed across the southern United States is rather unusual considering that just last year El Niño dominated the region with abundant precipitation," said **Bill Proenza**, director of NOAA's **National Weather Service** southern region.

Read more: <http://www.azcentral.com/members/Blog/ShawnMcKinnon/115019>

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For associated links and other timely water blogs on Shaun McKinnon's Arizona Republic site -- **Waterblogged** visit <http://www.azcentral.com/members/Blog/ShawnMcKinnon>.

AHS MEMBERS CORNER (NEW!)

[We are introducing a new member's informational section this month so if you would like to have your moves, promotions, or achievements appear in the newsletter, please send me a brief summary by the 20th of the month and I will include it as space and time allows. – [Christie O'Day](#), AHS Executive Director]

Bill Johnson Equipment Company of Phoenix, Arizona recently hired Tim Collins as a salesman. Bill Johnson Equipment is a well drilling supplies and equipment distributor that was established in 1949. Tim holds B.S. in Geology. He has more than 26 years of experience in the drilling industry including more than 22 years in the supplies and equipment side of the business. Tim has been an exhibitor at the AHS Symposium for many years.

Tim Collins AHS.jpg



[Tim Collins](#)

Bill Johnson Equipment Company
21 S. 40th St.
Phoenix, AZ 85034
(602)275-5415

Our AHS Corporate Treasurer, Beth Proffitt, has very recently made the move from Xenco Laboratories to Accutest, www.accutest.com! We will publish her contact information when as it comes available, but for now her clients and fans can reach her by her cell phone, (602) 828-0172.

ADDITIONAL INFORMATION

For more information about the Arizona Hydrological Society, or to view current job listings and announcements, please visit our regularly updated web site at:

<http://www.azhydrosoc.org/>

Membership may be renewed by credit card through the AHS website or by mailing a check to the Arizona Hydrological Society, P.O. Box 1882, Higley, AZ 85236. Dues remain at \$45.00 year for regular membership and \$15.00 for students. Please remember that your 2011 membership was included in the 2010 Symposium registration fee!