



APRIL 2011 NEWSLETTER

CONTENTS

[Viewpoint: 100 Years of Water](#)

[Government Goings-On](#)

[AHS scholarship applications now being taken!](#)

[Arizona Science and Engineering Fair](#)

[Phoenix chapter news](#)

[AHS 2012 Symposium now in planning stages!](#)

[Tucson chapter news](#)

[UA Earth Day 2011](#)

[WRRRC Event: May 4 Brown Bag - Water Stewardship at PepsiCo: Looking In, Out, and Beyond](#)

[Flagstaff chapter news](#)

[Next Flagstaff Chapter/2011 Symposium Planning Meeting](#)

[Hydro-news](#)

[WEF Arizona Water Resource tour Summary](#)

[Arizona Geological Society Meeting](#)

[Motorola, water company work toward well agreement](#)

[Arizona challenge: Finding water for the next 100 years](#)

[Buckeye names Water Resources director](#)

[Scottsdale City Council votes not to release water report](#)

[Waterblogged by Shaun McKinnon, Arizona Republic](#)

[Additional Information](#)

VIEWPOINT: 100 YEARS OF WATER

Joe's Barbeque is a restaurant well-known across the southeast Valley and maybe beyond, though I doubt many outside Mesa or Gilbert or Chandler have been there. Housed in a 1929 store that was the original Safeway in Gilbert, a long high wall runs the length of the building, and running the length of the wall is a huge hand-painted mural. The bright mural depicts the Valley as it once was, an agricultural paradise with cotton and citrus, fading into subdivisions to one side. And off to the other side feeding the acequias and laterals tended by zanjeros, as the source of all the bounty, stands the Roosevelt Dam.

While I would not call it great art, the mural is a reminder of a watershed event that occurred 100 years ago: the inauguration of Roosevelt Dam. Teddy Roosevelt, the President who signed the Reclamation Act, pushed a button, and water began flowing down to the Valley. The first project constructed under the new Reclamation Act, Roosevelt Dam was arguably (from the viewpoint of Arizona) the most important.

Water created the agricultural wealth of central Arizona, a fact anticipated by the farmers who pledged their lands and became members of the Salt River Valley Water Users Association, now SRP. Water later became the basis for real estate wealth, as the exploding population transmogrified the agricultural fields into subdivisions. Roosevelt Dam provided that water and reduced the crippling variability in flows that made early irrigation efforts fail (probably including those of the Hohokam). The dam lent stability to the supply, enabling planning and reliable allocation of water resources.

Other Reclamation efforts followed, notably the Central Arizona Project. But Roosevelt Dam was the first, and deserves the accolades and honor accorded its builders in the ceremonies during March of its centennial year. Arizona is a house built on water, a fact which all of us who are hydrologists or interested in water resources remember daily. And there is at least one place served by SRP water where hungry diners are also reminded of the true foundation of the Salt River Valley.

Alan Dulaney,

AHS Corporate Board President, 2011

[Top of the Document](#)

GOVERNMENT GOINGS-ON

The big news on the Federal level is the announcement by Senator Jon Kyl that he will retire in 2012. Senator Kyl has an in-depth understanding of water issues, and a long history of involvement with the water world. We are losing a real asset at the highest levels. Thank you, Senator Kyl, for your service and your attention to water resources.

The Congress still hasn't passed a final budget, and the Federal government lurches from one Continuing Resolution to the next. Budget cuts of massive size seem certain to occur. Many will impact the water world, particularly programs within the U.S. Environmental Protection Agency and the Corps of Engineers (BuRec is less affected). This bodes ill for the future of water, so important to the West, for money that leaves the budget is unlikely to return.

Also, the House of Representatives has attached several riders and statutory changes that will curtail the regulatory authority of the EPA. Most of these would restrict EPA from trying to regulate carbon emissions. Senator Barasso of Wyoming introduced S.228 which would negate the EPA finding that greenhouse gases contribute to climate change. This would preclude regulating carbon dioxide emissions from vehicles and power plants under any environmental law. And Senator Rockefeller introduced S.231 for a two year moratorium on regulating carbon dioxide.

EPA has been working on a new guidance document for the Clean Water Act that would define the types of waters regulated by the CWA. Authority may be expanded by references to "waters of the United States" as opposed to "navigable waters of the United States." Judicial decisions have already muddied these waters, and clarification is needed. The new guidance document should be out by April 28. Consultants and attorneys will be lining up to get it.

Next month: What finally happened in the Arizona Legislature? Maybe.

Alan Dulaney,

AHS Corporate Board President, 2011

[Top of the Document](#)

AHS SCHOLARSHIP APPLICATIONS NOW BEING TAKEN!

The Arizona Hydrological Society (AHS) and the AHS Foundation will award **three \$2,000.00** student scholarships in 2011. The purpose of this award is to encourage full-time students of hydrology, hydrogeology, or any other water-resource-related fields at any Arizona university or college to excel in their area of study. Please forward this announcement to any junior, senior or graduate student who may fit this description and would be interested in applying..

Applications for the Scholarship must be submitted by April 30, 2011.

The scholarship will be awarded during the 2011 Annual AHS Symposium. The [AHS Scholarship web page](#) for more information on how to apply. Please direct questions to [Dr. Aregai Teclé](#).

[Top of the Document](#)

ARIZONA SCIENCE AND ENGINEERING FAIR

Each year since 2004, AHS and CAP awards cash prizes to deserving students at the Arizona Science and Engineering Fair <http://azsef.org/> . These prizes are awarded to elementary, junior and senior high school students for outstanding projects focusing on geology or hydrology. The AHS awards are considered "Special Awards", separate from the awards given by AzSEF.

I would like to put out a request for AHS volunteers to help with judging at AzSEF. The date for judging is Tuesday April 12, 2011. I request that interested parties contact me by email pplato@clearcreekassociates.com or by phone 480-659-7131 (office) or 602-750-4237 (cell). Judging will involve several hours of time on the afternoon of April 12, 2011. As a group we will review the hydrologic projects and interview students (if available). Generally, I have met with the volunteers at 3PM and completed judging by 6PM.

This judging is separate from the AzSEF fair itself, and I encourage AHS members to also consider volunteering for judging at AzSEF. I have volunteered since 2004 and found it to be a fun and rewarding experience.

If you are interested, please contact me by phone or email.

Thanks,
Paul R. Plato, R.G.
Senior Hydrogeologist
Clear Creek Associates
(480) 659-7131

PHOENIX CHAPTER NEWS

The next Phoenix chapter dinner meeting will be held **on Tuesday, April 12, 2011**, at a new location - [Buffalo Wild Wings, 705 South Rural Road](#), Suite 101, in Tempe. Please join us for a beverage, to share business cards, and talk water!

Location: [Buffalo Wild Wings, 705 South Rural Road](#), Suite 101,

Event: *A Municipal Provider's Overview of Arizona Water Resources*
Steve Acquafredda, Jacobs Engineering Group, Inc.

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.

At the April Phoenix Chapter meeting, our own Steve Acquafredda will give a presentation on “A Municipal Provider’s Overview of Arizona Water Resources”.

Steve Acquafredda is a long-time active member of the Arizona Hydrological Society and the Phoenix Chapter. In 2001 he was the second recipient of the Herman Bouwer Intern Scholarship, and he has been actively involved in the Herman Bouwer Intern Scholarship Committee since 2002. Steve received a B.S. in Hydrology and Water Resources from the University of Arizona in 2001, and an M.S. in Engineering from Arizona State University in 2004. He is a Project Engineer with the Jacobs Engineering Group, Inc., and has ten years of experience in drinking water treatment, water resources, and civil and environmental engineering, including work with consulting firms, government agencies, and research groups.

Abstract

This presentation, developed by the Water Resources Committee of the AZ Water Association, was designed for use as a resource for Arizona water professionals to help educate others who lack detailed knowledge about water resources. The presentation focuses on issues associated with surface water, groundwater, and reclaimed water resources in Arizona, and specifically addresses the following topics:

- Arizona Water Resources & Management
- Legal Framework, Limitations, and Constraints

- Future Considerations

[Top of the Document](#)

Future Event Calendar (see also calendar on www.azhydrosoc.org)

- April 12 – **AEG/AHS** Student Night April 12th at **ASU**
- May 10 - **Marie Pearthree**, Central Arizona Project, *Navajo Generating Station & related issues* at Sun Up Brewery, 322 E. Camelback Rd., Phoenix
- June 14 - **Ben Ruddell**, Assistant Professor in the Engineering Department at ASU, the *Water-Energy Nexus*
- July 2011 and beyond – Anyone with a suggestion for a monthly meeting topic please contact [Tom Walker](#), Phoenix Chapter Vice President.

AHS 2012 SYMPOSIUM NOW IN PLANNING STAGES!

The venue for the 2012 Annual Symposium has been selected and dates confirmed! The Phoenix Chapter is pleased to announce that the 2012 Symposium will be held at the Desert Willow Conference Center (DWCC) on Sept. 18-21, 2012 in Phoenix. The DWCC is conveniently located near 48th Street and Broadway Road just off Interstate 10. Click [here for a map](#).

One of the great advantages of the DWCC is that it is not associated with a hotel. However, there are a number of great options for accommodations within convenient distance of the conference center with a wide array of levels of luxury from [Motel 6](#), [Hampton Inn](#), and [Homewood Suites](#) to [The Buttes](#) and the [Arizona Grand Resort](#).

More information will be coming available in the next few months as the Chapter begins to develop a website, program, and other details.

If you are interested in helping with any of these preparatory activities, please contact 2012 Symposium chairperson, Ted Lehman (ted@jefuller.com, 480-222-5709) or Phoenix Chapter Vice President, Tom Walker.

[Top of the Document](#)

TUCSON CHAPTER NEWS

April 2011 Meeting Announcement

The Tucson Chapter will meet on **Tuesday, April 12, at 6PM**. The meeting will start with a social half-hour at 6:00 PM, followed by the regular meeting at 6:30PM.

Location: The Shanty Cafe
401 East 9th Street
Tucson, AZ 85705
(520) 623-2664

This is located at the southern end of 4th Ave. across the street from O'Malleys.

At this meeting, Tian-Chyi “Jim” Yeh, Department of Hydrology and Water

Resources, University of Arizona will present *Active and Passive Hydrologic Tomography: a revolution in subsurface hydrology.*

Jim Yeh would like all consultants within the AHS community to come, especially those that doubt his methods :)

Abstract:

Aquifers are inherently heterogeneous at multiple scales. Limitations of analytical mathematics and our inability to sample aquifers at high density however have dictated adoption of aquifer homogeneity assumption. As scales of our interests become finer and computation and sensor technologies advance, we have developed methods for integrative analysis of multiple pumping tests (i.e., hydraulic tomography or active hydrologic tomography) for characterizing aquifers of tens and hundreds of meters in size at high resolutions. While more field assessments are needed, recent validations of the active hydrologic tomography based on numerical, laboratory and field experiments are promising. They show that not only is the tomography capable of detecting the pattern of hydraulic heterogeneity but also a groundwater flow model with the estimated heterogeneity can accurately predict flows under excitations different from those used in the tomography analysis. As a consequence, model calibration or inverse modeling effort should no longer be viewed as a history or curve matching exercise.

Promising results of active hydrologic tomography encourage the development of basin-scale hydrologic tomography. Basin-scale tomography requires energy sources of great strengths. Spatially and temporally varying natural stimuli are ideal energy sources for this purpose. In our recent study, we explored the possibility of using river-stage variations for basin-scale hydraulic tomographic surveys (i.e., passive hydrologic tomography). Specifically, we use numerical models to simulate groundwater level changes in response to temporal and spatial variations of the river stage in a hypothetical groundwater basin. We then exploit the relation between temporal and spatial variations of well hydrographs and river stage to image subsurface heterogeneity of the basin. Results of the numerical exercises are encouraging. In addition, preliminary analysis of hourly groundwater, river stage, and precipitation data collected by a densely distributed monitoring network in Zhoushuixi alluvium fan (3,000 km square), Taiwan supports the concept of passive hydrologic tomography for characterizing basin-scale aquifers and provides insights to the interaction between streams and groundwater at basin scales.

[Top of the Document](#)

February 2011 Meeting Summary

- Write up provided by Shane T Clark with information assistance from Marla Odom (Errol L Montgomery & Associates Inc).

-Shane has been an AHS member since 2009 is the Tucson Chapter Secretary (since January 2010). He is soon to graduate from the University of Arizona with a B.S. in Watershed Hydrology.

"AZPDES DE MINIMIS GENERAL PERMIT (DMGP)"

On Tuesday, February 8th, 2011 the Tucson Chapter hosted a special guest lecture by Lavinia Wright of ADEQ. This talk was attended by 12 people and was held at the Marshall building located at 845 N Park Ave, University of Arizona.

Here is a brief summary of her lecture for those AHS members unable to attend.

Lavinia Wright gave a presentation on the AZPDES De Minimis General permit (DMGP). Lavinia discussed changes from the expired 2004 DMGP to the 2010 DMGP which has replaced it.

Lavinia synopsis regarding changes from the Arizona Pollutant Discharge Elimination System (AZPDES), as well as the expiration of the 2004 De Minimis General Permit (DMGP) and the issuance and changes found in the 2010 DMGP.

The DMGP provide 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 provide coverage (subject to certain conditions) for several common types of discharges including dechlorinated swimming pool drainage and charitable non-commercial car washes. De Minimis permits have several benefits, including faster authorization, efficiency for ADEQ, and consistent permit conditions for similar discharges.

Lavinia has administered ADEQ's DMGP program since 2004. She previously manages 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 Resource Division.

Several important and helpful changes to the DMGP:

- 1.) Notice of Intent (NOI) can now be filed for Project-wide and Facility-wide DMGPs. This means you no longer have to file multiple NOIs for hydrologic testing projects. Project-wide DMGP coverage is for multiple discharge locations and/or long project periods. My understanding is that these new NOI types are good for the entire 5-year DMGP permit period that we are currently in (2010-2014). Coverage is administratively continued for the period between expiration and issuance of the next DMGP, at which time applicants are expected to file a new NOI for the new permit period.
- 2.) There are additional eligible discharges at remediation sites for the DMGP, including well and aquifer tests (up to 72 hours) and backflushing of injection wells. These discharges used to require individual permits, but applicants can now apply for DMGP (general permits).
- 3.) The threshold for photo documentation of before and after conditions for discharge locations has changed from 0.25 to 0.5 million gallons per day (discharge to concrete-lined canals or other impervious conveyances is no longer necessary).
- 4.) Minor amendments are now allowed for single NOIs. Previously, a new NOI had to be submitted whenever there was any change to conditions on the original NOI. See ADEQ website for allowed amendments.

ADEQ website (DMGP link):

<http://www.azdeq.gov/environ/water/permits/gen.html>

Note to AHS members that deal with the DMGP:

Fees are also changing. See the ADEQ website for more info. There is a July deadline for receiving NOIs for the new permit period. Any NOIs received after the deadline is subject to the new fees. NOIs received before that date will not have a fee for the first year, but will be subject to the annual renewal fee next year.

Also take special notice that:

The maximum penalty for discharging without a permit can reach up to \$25,000 per day per

incident. If your discharge might reach a surface water conveyance in the State of Arizona, please get your permit filed (or make sure your client has filed)!

The AHS Tucson Chapter extends a very warm thanks to Lavinia Wright for her informative presentation!

Additionally The Tucson Chapter would like to thank SAHRA at the Marshall Building for providing the space so that this monthly talk could be held!

[Top of the Document](#)

UA EARTH DAY 2011

UA **Earth Day 2011**: Be the Solution will be taking place on **Friday April 22, 2011**. Earth Day this year take place on the mall and is hosted by ASUA Students for Sustainability with the help of the UA Office of Sustainability. Click here [for the Earth Day 2011 Participation Form](#). There is also a sponsor announcement if you are interested in contributing even more to Earth Day – click [here for details](#)! Please submit the participation form by Thursday April 6, 2011.

The purpose of **Earth Day 2011: Be the Solution** is to educate individuals about Earth Day and different issues that the Earth is facing. Students for Sustainability want to involve the Tucson community to make this happen. We would appreciate your participation in making this event memorable and becoming the solution.

If you have any questions please do not hesitate to contact us.

Sincerely,

Michele MacMillan
ASUA Students for Sustainability Earth Day Intern
macmillm@email.arizona.edu
623-451-0073

Lital Ruimy
ASUA Students for Sustainability Earth Day Intern
litalr@email.arizona.edu

WRRC EVENT: MAY 4 BROWN BAG - WATER STEWARDSHIP AT PEPSICO: LOOKING IN, OUT, AND BEYOND

Tuesday, 5/4/11 from 10:30 AM to 12:00 PM

NOTE: early start time

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

Event Summary

Speaker: Liese Dallbauman, Director, Water Stewardship, PepsiCO

PepsiCo relies on water in ways that go beyond its use as a major ingredient in our beverages. We use water throughout our food and beverage plants; our supply chain partners also depend on water to operate.

Many of PepsiCo's water stewardship initiatives are directly linked to the four-stage ReCon (Resource Conservation) program, which is based on understanding energy and water use

at the plant level and beyond. In addition to being implemented across PepsiCo's international business units, the program has been shared with key suppliers.

Beyond ReCon, we partner with organizations with expertise in providing safe water and sanitation to underserved communities in countries around the world.

Examples of our ongoing water stewardship efforts – in our operations, with our suppliers, and in the community -- will be provided.

[Top of the Document](#)

FLAGSTAFF CHAPTER NEWS

Flagstaff April meeting announcement, sponsored by AHS and SESES:

[Karst Hydrology of the Grand Canyon, Arizona, USA](#)

By Carol A. Hill

Department of Earth and Planetary Sciences, University of New Mexico

The talk is to be held **6:00 PM on April 13, 2011** in Room 103 of the Physical Sciences Building 19 at Northern Arizona University. All are welcome to attend!

The talk will provide a summary of recent work on the hypogene (slow-flow confined aquifer conditions) karst hydrology of the Grand Canyon. First, a discussion will be presented of the relict hypogene caves in the Guadalupe Mountains of New Mexico and an active hypogene cave in Tabasco, Mexico to illustrate what hypogene karst is and how it forms. Next, the deep hypogene karst system of the Grand Canyon will be discussed. Caves in the Grand Canyon fall into two main categories: those formed under unconfined (vadose) conditions and those formed under confined hypogenic conditions. Water-table lowering in the Redwall-Muav aquifer is recorded by deposits in the confined caves, and U-Pb dating of these deposits offers a way of interpreting the incision history of the canyon. The principles of karst – and age determination of the cave deposits and water-table lowering – will be applied to: (1) a 17-6 Ma old western Grand Canyon, (2) a karst source for the carbonates of the 11-6 Ma Hualapai Limestone, and (3) a ~6 Ma karst connection under the Kaibab arch for the eastern and western Grand Canyon.

Directions: From Milton Road in Flagstaff, turn east on Butler, and then south on Beaver Street. Public parking available in the P2 parking lot on the east side of Beaver St., just south of DuPont Ave. [Click here for NAU map.](#)

NEXT FLAGSTAFF CHAPTER/2011 SYMPOSIUM PLANNING MEETING

Please visit the [AHS 2011 Symposium web site](#) or contact [Brad Hill](#) for details about the next Symposium Committee meeting.

[Top of the Document](#)

HYDRO-NEWS

WEF ARIZONA WATER RESOURCE TOUR SUMMARY

by *Shane T Clark, U.A. Watershed Hydrology*

On February 16-18th 2011 the Water Education Foundation assisted by AHS's own Keith W. Scoular, R.G. and C.E.M., held an Arizona Water Resource tour. The Arizona Hydrologic Society corporate board decided to sponsor one student member to attend this tour. I submitted the necessary criterion materials and was very elated when I was randomly selected to participate in this momentous excursion.

Arizona has an abundance of water resource issues. Water quantity, quality and delivery to specific locales are the persistent dilemmas that water manager's address. How specific agencies within the state deal with drought, groundwater management, surface water distribution and conservation, for the needs of urban, agricultural, rural and environmental communities, was the main focus of this three-day, two-night undertaking. The tour was quite educational about public policy, decision making, and logistical implications by state and federal authorities regarding the challenges that are involved with Arizona's water management.

I was one of 51 participants. The group was very diverse and included attorneys, people from mining, SRP, Reclamation, farmers, the EPA, the Environmental Defense Fund, the Sonoran Institute, the Bureau of Indian Affairs, Metro Water board members, the Walton Family Foundation, and various other state and federal agencies from all around the country.

The tour went miraculously well and I was particularly impressed as to how smoothly 51 people transitioned from one stop to another. The tour was a whirlwind tour where we had a chance to go to many facilities such as: the Salt River Project Operations Center, the Gila River Indian Wild Horse Pass Hotel and Casino (Gila River Indian Community Water Rights Settlement; project Construction), the Houser-Casa Grande Earth Fissure Site, the Reclamation's Salinity/Halophyte Pilot Project, the Central Avra Valley Storage and Recovery Project, the Nature Conservancy/University of Arizona Rain Harvesting, the Rosemont Copper Mining site, the Wellton-Mohawk Valley, the Yuma East Wetlands, the Bureau of Reclamation Yuma Area Office, Yuma Desalting Plant, Morelos Dam & various Yuma area agricultural fields, and to the Tres Rios Ecosystem Restoration and Flood Control Project.

While in route to these various locations the group had traveling lecturers who addressed such topics as: Salt River Project introduction, Tempe Town Lake and inflatable dams, CAP Operations and delivery challenges, Salinity issues in Arizona surface water and groundwater, Tucson-area water resources, surface water use vs. groundwater pumping, New challenges for Tucson and Pima Country water supplies: stormwater, water harvesting, catchment basins, Copper mining in Arizona: The Rosemont Copper proposal, Concerns about the Rosemont Copper Mine, Yuma Crossing History, introduction to Yuma East Wetlands, Yuma area water supply issues, View Colorado River crossing into Mexico, Morelos Dam; Yuma area water supply issues, Environmental concerns regarding management of Arizona water, Flood management in a desert, and a comprehensive discussion of the energy/water nexus.

As you can see there was much to be learned and I received a tremendous amount of knowledge, insight, and perspective from this experience. I am so grateful for being a part of the Arizona Hydrologic Society. I am quite appreciative to AHS for giving me the opportunity to participate and become enlightened with the numerous water issues that we here in the Southwest, specifically southern Arizona, face.

I want to thank AHS for this opportunity to grow in my personal understanding and ability regarding the many facets surrounding Arizona's water issues. Thank you for the support and encouragement to further my Hydrological education through the monthly speaker presentations, field trips, and annual symposium that AHS offers to its members.

Thank you to all who actively participate in the Arizona Hydrological Society!

Sincerely,

Shane T Clark

U.A. Watershed Hydrology

[Top of the Document](#)

ARIZONA GEOLOGICAL SOCIETY MEETING

Search for Life in the Solar System

Peter Smith, Professor
Lunar and Planetary Laboratory
University of Arizona

Sheraton Four Points Hotel Wildcat Room
1900 East Speedway (SE corner of Campbell and Speedway)
Tucson

Lecture at 8:00 PM
Tuesday, April 5, 2011

Reservations are required for the dinner. Admission to the talk only is free. Please also note that although there is limited surface parking around the hotel, there is ample parking in the garage beneath the hotel.

SCHEDULE: CASH BAR @ 6:00 PM, DINNER @ 7.00 PM, TALK @ 8:00 PM. WITH RESERVATION: MEMBER = \$24.00, GUEST = \$27.00, STUDENT = \$10.00 *If you do not have a reservation, an extra \$3.00 will be charged. Also, without reservations you may not get dinner. To make dinner reservations please call the AGS answering machine at (520) 663-5295 or reserve online at <http://www.arizonageologicalsoc.org/meeting-information/dinner-reservations> by 5:00 P.M. on the Friday before the meeting. Leave name, number of attendees, and whether a vegetarian or low-salt meal is required. This number can also be used for field-trip reservations and leaving messages for Society officers. Please cancel your reservation via the answering machine if you find that you will be unable to attend.*

Abstract

With each mission, scientists seem to be getting closer to finding evidence for extra-terrestrial life. Mars is a prime candidate, but the signatures are well hidden and tantalizingly just out of reach. The next mission, the Mars Science Laboratory, has a good chance of finding important clues as to whether life ever could have developed in early Mars history. While the outer planets are not habitable, their satellites (like Europa) harbor surface ice and probably buried seas that may have the minerals needed to support an ecosystem. Titan is cold but intriguing with a chemical laboratory of organic molecules and cryovolcanoes. But without doubt the best chance is the plethora of planets just now being located within our galaxy and the exciting possibility of finding Earthlike planets with surface water and atmospheres. The numbers are so large that it is only a matter of time until we have a good list of candidates. This talk will review the various possibilities for locating other biospheres.

MOTOROLA, WATER COMPANY WORK TOWARD WELL AGREEMENT

by **Beth Duckett** - Mar. 14, 2011 08:52 AM
The Arizona Republic

A plan to reconnect a water well and curb groundwater pumping in the Northeast Valley is moving forward with support from the company that will cover the costs, a representative said last week.

[Motorola](#), which has agreed to pay for treatment to allow reconnection of the well, is working to finalize an agreement with the Arizona American Water Co. to make the plan a reality, said Terry Lockwood, program manager of global environmental remediation for Motorola Solutions, Inc.

The plan, proposed early this month, would require approval from the [Environmental Protection Agency](#) and other stakeholders, Lockwood said.

Arizona American Water provides drinking water to about 5,000 customer connections in Paradise Valley and Scottsdale.

The company, a subsidiary of American Water Works Company, Inc., agreed to disconnect the well in 2008 because it was tainted with a suspected cancer-causing chemical in the local water supply.

Company officials and stakeholders have since worked to address the loss of the water source.

Lockwood confirmed that [Motorola](#), one of the sources of the groundwater chemical contamination that occurred decades ago, supports the proposed two-stage water-treatment process, which uses "granulated activated carbon" to treat the well water and ensure its purity.

Read more: <http://www.azcentral.com/community/scottsdale/articles/2011/03/14/20110314motorola-water-company-work-toward-well-agreement.html#ixzz1I3KHsGPM>

ARIZONA CHALLENGE: FINDING WATER FOR THE NEXT 100 YEARS

by **Shaun McKinnon** - Mar. 19, 2011 12:00 AM
The Arizona Republic

In 1911, a group of farmers on the lower Salt River, struggling to cope with floods and drought, built Roosevelt Dam and developed a reliable water supply that has met the needs of a growing region for 100 years.

In 2011, the challenge is no longer how to ensure enough water to develop farming in the arid Valley, but where Phoenix and other Arizona cities will find water for the next 100 years.

Demand has spread beyond the capacities of Roosevelt and the other dams on the Salt and Verde rivers. Drought has underscored the vulnerability of Colorado River water, delivered to the Valley in the last big water project built here, the Central Arizona Project Canal. Climate change has added uncertainty.

What is certain is that there will be no Roosevelt Dam for the next generation, no single piece of infrastructure that can create another 100-year supply of water.

"The big dams are all built," said Craig Kirkwood, an Arizona State University researcher who has studied water-resource issues.

"You can reallocate water. You could augment water supplies, but that would probably be very expensive. Or you could say, 'We're living in the desert,' and just accept that."

Read more: <http://www.azcentral.com/arizonarepublic/news/articles/2011/03/19/20110319arizona-water-issue-from-growing-cities.html#ixzz1I3LLOwQF>

[Top of the Document](#)

BUCKEYE NAMES WATER RESOURCES DIRECTOR

Mar. 22, 2011 09:43 AM

The Arizona Republic

Dave Nigh has been named director of Buckeye's Water Resources Department.

Nigh, who served as the department's interim director since June, was the only internal candidate to apply and be interviewed for the position. He replaces the previous director, Damon Dequenne. Nigh's annual salary will be \$101,210.

Nigh has two decades of management experience in water resources, regulatory compliance and safety.

Town Manager Stephen Cleveland was pleased that Nigh accepted the promotion.

"Dave has an impressive myriad of experience, including high certification levels in water and wastewater," Cleveland said. "Since becoming the interim director last June, Dave has directed the department both professionally and strategically."

Read more: <http://www.azcentral.com/community/swvalley/articles/2011/03/22/20110322buckeye-water-resources-director.html#ixzz1I3MJ5x1B>

[Top of the Document](#)

SCOTTSDALE CITY COUNCIL VOTES NOT TO RELEASE WATER REPORT

by **Beth Duckett** - Mar. 3, 2011 12:00 AM

The Arizona Republic

A taxpayer-funded study that explores the possibility of Scottsdale's acquiring a private water company's service area still is being withheld from the public, after the City Council opted not to take action on its release this week.

Council members on Tuesday voted to defer any decision to publicly release the 2009 study, which cost the city \$311,917 and has been kept secret since its completion.

The Arizona Republic has filed a request asking for a copy of the study involving Arizona American Water Co., under the state public-records law. The City [Attorney's](#) Office has denied the paper's request, citing attorney-client privilege.

Vice Mayor Bob Littlefield and council members Lisa Borowsky, Ron McCullagh and Dennis Robbins voted in favor of the delay, which was part of a larger vote to defer other water-related items on the council agenda involving Arizona American.

Scottsdale hired Carollo Engineers PC to prepare the report to explore ways for Scottsdale to

provide water service to Arizona American Water customers.

At least one council member has suggested condemnation as a way for the city to gain control of all or part of the service area, which includes parts of Scottsdale and Paradise Valley. Arizona American Water has maintained its service area is not for sale.

Read more: <http://www.azcentral.com/news/articles/2011/03/03/20110303scottsdale-water-study-service-area.html#ixzz1I3NZdrCz>

[Top of the Document](#)

WATERBLOGGED BY SHAUN MCKINNON, ARIZONA REPUBLIC

(CLICK ON TITLES FOR LINK TO FULL COLUMN)

[Where does Phoenix get its drinking water?](#)

Thursday, February 24, 2011 at 02:09 PM



Do you know where you're drinking water comes from?

If you're even a semi-regular reader of **Waterblogged**, then you should. But you would be among the minority of Americans surveyed in a [poll](#) for **The Nature Conservancy**.

According to the poll, 77 percent of those asked -- a group that doesn't include people on individual wells -- could not accurately identify the source of the drinking water that flows from the taps in their own homes. Half of the people in the poll couldn't even guess. And half of those who claimed to know their water's provenance

turned out to be wrong.

Why is it important to know? Because when you know the source of your drinking water, you might take an interest in its preservation and its quality. If you know the **Verde River** (above) delivers some of the water you drink (as it does for most of metro Phoenix), the health of the river and its riparian ecosystem could become more important. If you know your [water flows](#) down the **Colorado River** (below), you might pay more attention to the debate over uranium mining outside the **Grand Canyon**.

[Top of the Document](#)

[Senate passes 'right to pollute' bill](#)

Thursday, March 3, 2011 at 09:58 AM

If you heard music coming from the state **Legislature** earlier this week, it might have been a chorus of "it's our dust and we'll cough if we want to" by the [21 senators](#) who voted to pass [Senate Bill 1393](#), the so-called **Freedom to Breathe Act**.

The measure, sent to the house on a party-line vote, would give the Legislature sole authority to regulate dust pollution in Arizona and prohibit the **U.S. Environmental Protection Agency** from enforcing the **Clean Air Act**.

A companion bill, [SB1394](#), would let Arizona team up with other states to protect our regional right to breathe polluted air.

In its original form, SB1393 addressed greenhouse gases and was a states' rights-inspired attempt to stop the EPA from regulating the pollutants scientists say contribute to climate change. The Legislature last year asserted its authority to regulate global warming gases; this bill took it a step further and made it a crime for the EPA to regulate those pollutants if they were emitted within the state.

But after the measure had cleared its committees, Sen. [Steve Smith](#), R-Maricopa, proposed an amendment to add dust particulates -- PM-10 and PM-2.5. And the Senate agreed.

[Top of the Document](#)

[Arizona runoff looks bleak as La Niña fades](#)

Wednesday, March 9, 2011 at 04:45 PM

Runoff will flow into **Arizona** rivers at near record-low levels this spring, according to the latest [snowpack survey](#) released by the **Natural Resources Conservation Service**.

Below-average precipitation since the start of the year has sucked the moisture out of the state's high country, where melting snow produces much of our surface water supply each year. The forecasts for March-May runoff spell drought conditions almost everywhere:

- Little Colorado River: 18 percent of the March-May median
- Salt River: 22 percent of median
- Gila River: 23 percent of median
- Verde River: 42 percent of median

Dino DeSimone, state water supply specialist for the NRCS in Phoenix, said the snow surveys turned out "true to form" for a **La Niña** year and he said the dry trend will likely continue, even as La Niña fades in the Pacific Ocean.



La Niña is the name given to cooler water temperatures in the equatorial Pacific, conditions that typically steer the winter storm track away from Arizona and the Southwest. The La Niña cycle just ending was particularly strong.

Snowpack levels on March 1 were also below the 30-year average, with the exception of the **San Francisco Peaks** and the **Verde River**, which have benefitted from a series of stronger storms in north-central Arizona:

[Top of the Document](#)

[CAP: Runoff will postpone rationing 5 years](#)

Tuesday, March 22, 2011 at 10:18 AM

The water gurus over at the [Central Arizona Project](#) like what they see in the high **Rocky Mountains** and on the spreadsheets at the [Bureau of Reclamation](#). They say the anticipated runoff from this winter will likely help forestall any rationing on the **Colorado River** until at least 2016.

That's a big prediction in the often-uncertain water world, especially since the snow depths up in the Rockies haven't come close to what's buried the **Sierra Nevada**. But if drought restrictions aren't triggered this year -- and it appears likely they won't be -- the credit will belong as much to a 2007 agreement as much as the snow.

So how is it that a barely-above-average winter on the upper Colorado River will postpone the threat of water rationing for another five years?



Here's the situation: Last fall, **Lake Mead** had fallen to historic low levels, elevation 1,082 feet above sea level by November. That was just seven feet above the first drought trigger of elevation 1,075. At that level, the CAP, which manages more than half of Arizona's Colorado River allocation, would have lost about 20 percent of the water it could deliver.

Those triggers were established in the 2007 agreement among the seven river states, a landmark compact built on a complicated set of rules for dealing with drought. The rules were tied to the river's two largest reservoirs, Lake Mead, which stores water for the three lower basin states (Arizona, California and Nevada) and **Lake Powell**, which stores water to support the allocations of the three upper basin states (Colorado, Wyoming, Utah and New Mexico).

[Top of the Document](#)

[BLM delays action on canyon mining ban](#)

Tuesday, March 29, 2011 at 05:19 PM

The **U.S. Bureau of Land Management** has [extended the public comment period](#) another 30 days on a proposal that could ban uranium mining on up to 1 million acres near the **Grand Canyon**.

As a result, environmental groups charged Tuesday, a two-year moratorium on new mining claims in the region could expire before the government reaches its decision on a 20-year ban.

"The nearly-certain result of today's move will be a gap in protections," said **Taylor McKinnon**, who follows the issue for the **Center for Biological Diversity**. "We will be looking to the Obama administration to issue a new segregation to fill that gap until a final decision on the withdrawal has

been made."

Interior Secretary **Ken Salazar** imposed the temporary halt to new mining activities in 2009 and ordered his agencies to consider a longer moratorium. Only Congress can permanently ban mining on public lands.

In February, the BLM released a [draft environmental impact statement](#) outlining several possible proposals to stop new mining near the [canyon](#), where significant stores of uranium ore lie underground. One of the proposals was to withdraw about 1 million acres for 20 years.



[Top of the Document](#)

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

[Top of the Document](#)

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!